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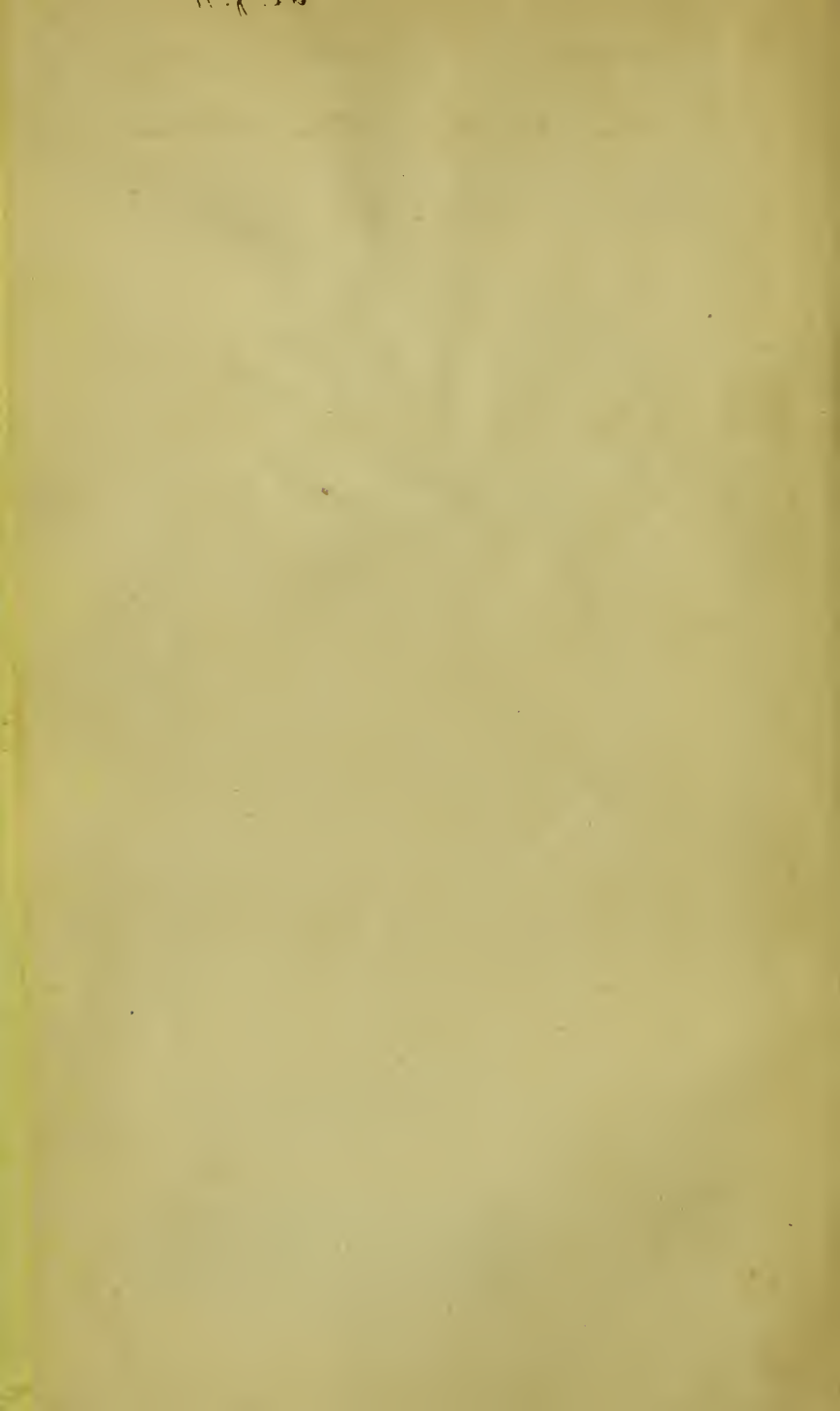
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DISEASES

OF THE

STOMACH AND DUODENUM.

BY

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“ Nulla est alia pro certo noscendi via nisi quam plurimas et morborum
et dissectionum historias, tum aliorum, tum proprias, collectas habere et
inter se comparare.”

MORGAGNI, *De Sed et Caus. morb.*, lib. iv., præm.

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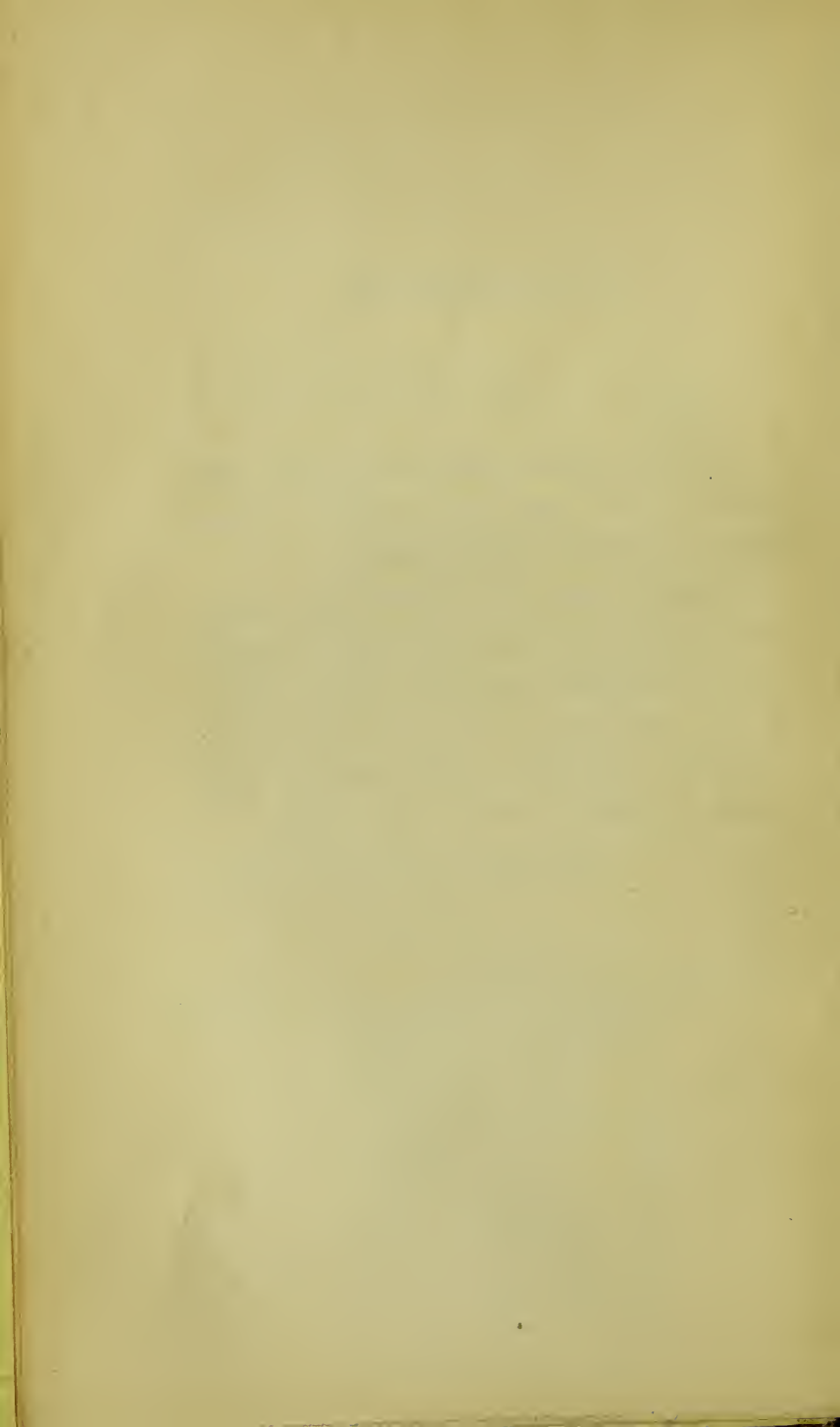
INTRODUCTION.

My object in writing the following pages has been to present to the world a comprehensive work on Diseases of the Stomach and Duodenum.

In addition to my own labours during several years—passed in the French and English hospitals, in parochial, dispensary and private practice, collecting cases—I have, from a wish to render the work as complete as possible, carefully examined every *attainable* work likely to assist me in my efforts.

CHARLES EVANS REEVES, M.D.

53, UPPER SEYMOUR STREET,
PORTMAN SQUARE, LONDON.
October, 1856.



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NOTICE.

THE following Work, in Two Volumes, by Dr. EVANS REEVES, is
preparing for the press :—

DISEASES OF THE BRAIN AND SPINAL CORD.

The First Volume, containing DISEASES OF THE BRAIN, will be ready in
January.



DISEASES OF THE STOMACH.

CHAPTER I.

ACUTE GASTRITIS.—*Acute Inflammation of the Stomach.*

VARIETIES.—1. *Affecting the Mucous Membrane.*—2. *General, affecting all the coats.*—3. *Phlegmonous.*

CAUSES.

I. PREDISPOSING.—*Sex and Age.*—Baglivi was of the opinion that females were more predisposed to this disease than males. Broussais considered, however, that the contrary was the case. The opinion of the first seems to be correct; for Valleix, in seventeen cases, which he collected from various sources, found that nine of the number were females; and eight out of thirteen cases which have fallen under my own observation belonged to the same sex. The bills of mortality also show that the liability, at least to a fatal termination, is greater in females than in males; for out of 508 deaths from this disease, registered in London during six years, 311 of the number were females.

In some years, as will be seen from the following

table, the mortality was much greater than in others :—

	Males.	Females.	Excess.
1844	27	33	6
1845	26	37	9
1846	36	64	28
1847	34	66	32
1848	37	58	21
1849	37	51	14

With reference to the periods of life when the greatest predisposition to this disease exists : in males, it appears to be under five years, and from twenty-five to fifty-five; in females, under five years, and from twenty-five to seventy-five.

The following table contains the analysis of the ages and sex of 448 fatal cases :—

	Males.	Females.
Before 5 years	22	43
5 "	9	8
10 "	—	7
15 "	4	6
20 "	4	4
25 "	8	15
30 "	7	12
35 "	14	21
40 "	10	24
45 "	7	12
50 "	18	18
55 "	16	25
60 "	7	30
65 "	7	16
70 "	2	12
75 "	—	12
80 "	—	—
85 "	—	5
	170	278

Climates and Seasons.—It is usually considered that these exert a powerful influence in predisposing to this disease. In Malta, with a civil population of 95,000, forty-seven deaths occurred from this disease in thirteen years. In some years, as will be seen from the following table, the deaths were (as in London) more numerous than in others :—

	Total in each Year.
In 1822, 1 in June	1
„ 1823, 4 in March, 1 in April, 1 in June, 1 in July .	7
„ 1824, 1 in January, 1 in August, 2 in December .	4
„ 1825, 2 in April	2
„ 1826,	—
„ 1827,	—
„ 1828, 1 in November	1
„ 1829, 1 in May, 1 in August, 1 in September .	3
„ 1830,	—
„ 1831, 2 in April, 1 in June, 1 in August, 2 in November	6
„ 1832, 2 in July, 1 in August, 2 in September, 1 in November, 1 in December	7
„ 1833, 2 in March, 1 in June, 1 in December . . .	4
„ 1834, 1 in January, 2 in March, 2 in April, 1 in May, 2 in July, 1 in October, 2 in Novem- ber, 1 in December	12

In Madras, however, during ten years, from 1829 to 1838 inclusive, not one case was admitted into the General Hospital.

By consulting the returns published of the number of cases and deaths which occurred among the troops employed in different parts of the world, some estimate as to how far climate predisposes to this disease may be arrived at.

Home.—In the Foot Guards, with an average yearly strength of from 4500 to 5000 men, only two cases occurred in seven years, from 1830 to 1837. During the next ten years, from 1837 to 1847, with an average yearly strength of 4000 men, six cases occurred, one of which died.

In the Dragoon Guards and Dragoons the liability was much greater. Thus, with an average yearly strength of from 6000 to 6400 men, twenty cases occurred in seven years and three months, from 1830 to 1836, of this number thirteen occurred in 1830 and 1831—death ensued in only one instance.

During the next ten years, from 1837 to 1847, with an average yearly strength of from 5000 to 6000 men, fourteen cases occurred; five of these occurred in 1846—one case died.

Gibraltar.—With an average yearly strength of from 2500 to 3700 men, twenty cases occurred during eighteen years, from 1818 to 1836; five of the cases died, and one of the number was a commissioned officer.

Malta.—With an average yearly strength of 2000 men, ten cases occurred during eighteen years, from 1818 to 1836—one of them died.*

Corfu.—With an average yearly strength of 2000 men, thirteen cases occurred during six years, from 1815 to 1821—two of the number died.

The Bermudas.—From 1817 to 1836 203 cases occurred, seven of which died. Prior to 1824, and

* Hennen. Medical Topography of the Mediter. 1830.

subsequent to 1832, there were no cases ; but, as will be seen from the following table, the disease was very severe in 1825 and 1826, 1830 and 1831. But from 1837 to 1847 three cases only occurred.

Year.	Strength.	No. of Cases.	Deaths.
1824	212	2	—
1825	268	77	2
1826	616	57	4
1827	666	10	—
1828	—	5	—
1829	—	2	—
1830	769	20	—
1831	1182	39	1
1832	1147	1	—

West Indies. Windward and Leeward Command.—

With an average yearly strength of from 4500 to 5000 men, 161 cases occurred during nineteen years, of which number twenty-six died. During this time four officers were seized with the disease.

As at the Bermudas, the disease was more severe in some years than in others, particularly in 1831, 1832 and 1833, as will be seen from the following table :—

Year.	No. of Cases.	Deaths.	Year.	No. of Cases.	Deaths.
1818	3	—	1828	3	1
1819	2	—	1829	5	2
1820	1	—	1830	7	1
1821	6	3	1831	25	1
1822	3	—	1832	47	5
1823	4	3	1833	31	2
1824	1	—	1834	6	2
1825	6	3	1835	6	”
1826	1	1	1836	4	”
1827	3	3			

Among the black troops, the number of which varied from 1100 to 3300, during this time five cases occurred, two of which died.

British Guiana.—With an average yearly strength of from 850 to 1000 men, six cases occurred in nineteen years.

Trinidad.—With an average yearly strength of from 180 to 400 men, three cases occurred. No cases occurred among the black troops.

At Tobago, Grenada, St. Vincent, Barbadoes, St. Lucia Dominica, Antigua, and St. Christopher's, no cases occurred, or not more than 12 in the nineteen years.

Jamaica.—With an average (yearly) strength of 3000 men, forty-two cases occurred in nineteen years, four of which died. Here the disease, as at the Bermudas and the Windward and Leeward Command, was more severe in some years than in others. In 1828 seven cases occurred; in 1829 four; in 1830 six; in 1834 six; in 1835 six. In the other fourteen years, in six no cases occurred; in five one case occurred in each year; in three two cases occurred in each year. During the nineteen years only one case occurred among the black troops.

Sierra Leone.—No cases occurred among either the white or black troops during nineteen years. The average yearly strength of the first ranged from 200 to 371, of the last from 300 to 500.

St. Helena.—In six years four cases occurred, two of which died. The average yearly strength of the troops stationed here ranged from 600 to 1100.

Cape of Good Hope.—From 1818 to 1836 the average yearly strength of the troops stationed here ranged from 1200 to 1600. Eighteen cases of this disease occurred, of which number three died. Two of the cases occurred among the troops (from 400 to 600 strong) stationed on the frontiers.

Mauritius.—The average yearly strength of the troops stationed here ranged from 1200 to 1800. During nineteen years fifty-six cases occurred, six of which proved fatal. In some years, no case occurred, while in others, four, five, six, seven, and even nine were observed.

Ceylon.—The average yearly strength of the troops stationed here was 2000. During nineteen years fourteen cases occurred, of which number three died. In some years no cases occurred, while in others one, sometimes two, or three; but the latter number was never exceeded.

Among the Malay troops, the yearly number of which ranged from 1300 to 2000, seven cases occurred.

Among the Gun Lascars, the yearly number of which varied from 177 to 200, no cases occurred.

Among the officers one case occurred.

Canada.—The average yearly strength of the troops varied from 1200 to 1800. In nineteen years twenty-three cases occurred, of which number five died. In some years there were no cases, while in others, one case (most frequently), or two or three occurred; officers were exempt.

Among the Foot Guards stationed here, from

1838 to 1842, their strength being 1,600, five cases (three in 1842) occurred, of which two died.

India.—

Stations.	Strength.		No. of Cases.	Deaths.
Central Division of Madras				
Ceded Districts } from 1834 to } 1838 (five yrs.) }	4582	{ 1st Half 2nd „	7 3	1 —
Southern Division (Madras) }	4502	{ 1st Half 2nd „	18 7	2
Mysore Division	8000			
Hyderabad Force	4862	{ 1st Half 2nd „	7 6	1 1
Nagpore Force	5000	{ 1st Half 2nd „	18 10	— —
Tenasserim Coast	4379	{ 1st Half 2nd „	6 3	— 1

The native troops were either altogether exempt, or not more than one case occurred among 4000 in two years and a-half.

Dr. Copland (*Dict. Med., art. Gastritis*) considers a malarious state of the atmosphere to act as a predisposing cause.

In this country some seasons of the year are considered to exert a greater influence than others in predisposing to this disease. The following table of the average mortality in London, in every four weeks in each year for eight years, will show that one does not possess any very marked influence over the other; at least in inducing a fatal termination. It may, I think, be assumed as a rule, that more deaths occur about Christmas than at any other time of the year:—

	1844	1845	1846	1847	1848	1849	1850	1851
1st 4 weeks	5	6	10	12	11	6	11	3
2nd "	5	2	6	6	8	4	6	6
3rd "	9	5	5	4	11	6	9	6
4th "	4	4	10	5	4	7	8	10
5th "	4	6	4	14	5	8	4	6
6th "	3	6	6	8	3	9	9	12
7th "	1	7	8	9	7	11	9	10
8th "	7	7	9	2	7	7	12	12
9th "	4	4	9	7	4	5	8	10
10th "	4	6	10	13	12	8	6	8
11th "	5	2	6	5	6	4	4	7
12th "	2	4	5	7	7	6	6	8
13th "	7	2	12	7	10	6	6	5

II. EXCITING. *In temperate climates.*—Fits of passion, depressing mental emotions, are considered, by systematic writers, to act as powerful exciting causes. I am inclined to think that their influence as excitants has been greatly overrated, and that the disease may be generally traced to the introduction of irritants, an overloaded state of the stomach and bowels, or to the previous existence of chronic gastritis: there cannot be a doubt but that they act as strong predisposing causes. Heister mentions the case of a female lately confined, who was seized with gastritis after a fit of passion, but without entering into any details. Hoffman* cites a case from Hildanus, where a fit of passion induced this disease. I have not been able to find this case in the edition (*Franck*. MD.CLXXXI) in my possession. In the cases usually cited from Hoffman† as instances of this

* Opera omnia Physico-Med. vi. 227.—MD.CCXL.

† De Febre Stomach Inflamm. opera ii. 123.

disease induced by mental excitement, it will be found that it was in every instance caused either by drinking cold beer, wine, spirits, or from the exhibition of antimony. The first case recorded by him is that of a female, who, after a fit of passion, suffered from depression and loss of appetite. A few days later she again fell into a passion, and, while excited, drank some cold beer, which excited fatal inflammation. The second case (obs. vi.) is that of a man, aged fifty, who, after a severe fit of anger, was seized with heat in the stomach and anxiety. An antimonial emetic was given, which induced fatal gastritis. The third (obs. vii.) is that of a student, aged twenty, who, while in a fit of passion, drank largely of wine—fatal gastritis was the consequence. In the fourth,* the person, a man, while quarrelling, drank largely of warm wine. Severe pain in the præcordia and anxiety with retching ensued. An antimonial emetic was given, which produced copious evacuations, and caused the symptoms to increase—death ensued.

Blasius (*Obs. Med. Anat. Rariores*, obs. xxi.), mentions a case, where a man, aged twenty-four, who, while in a great passion, drank a large quantity of cold fluid, and was seized on the following day with gastritis.

Dr. Copland states that Bang (*Acta Reg. Soc. Havniensis*), has recorded two instances where gastritis was caused by anger.

* Opera vi. 227.

Two series of this work have been published. In the one to which I have had access, ed. MD.CCXCI, he observes, at page 79:—“*Puella 32 an. nata se dolore cardiæ constante, ad octo dies, jam protracto, ab attactu externo et ingestis increcente;*” and again, at page 291, he says:—“*Vomitum trimestris virum 33 annos natum vexaverat quandoque ad 5 vel 6 dies intermittens, per quatuordecim proximos dies frequentior, raro diem intermittens, tam spontaneus quam ex ingestis mox post assumptionem rejectis.*”

Andral* mentions, however, the case of a female, who after severe mental trouble began to suffer from difficult digestion, pain in the epigastrium, and vomiting of every thing taken.

The following is the only instance which has fallen under my notice where mental emotion produced symptoms approaching to those of gastritis. The subject, a girl aged eighteen, was much frightened by some persons attempting to break into a house where she was alone. When seen two days after the occurrence, she had pain and constriction at the epigastrium, which was extremely tender to the touch, vomiting of everything taken, tongue red, quick pulse, hot moist skin, and thirst. From time to time she had fits of hysteria. In the other cases which I have observed, the following were the causes:—

* Clinique Méd. ii., observat. 3.

1. A male, aged thirty-three, rather stout, a law writer by occupation, subject to pyrosis for some years. From excess in eating and drinking, pain was excited in the region of the pylorus, which extended into the epigastrium and left hypochondrium in the course of a few hours.

2. A male, aged twenty-one, delicate, and of sedentary habits, after walking twenty-eight miles, and then eating freely of indigestible food.

3. A delicate female, aged nineteen, after a long walk, by which she was much fatigued, followed by exposure to wet and cold.

4. A female, aged twenty-four, stout and phlegmatic, subject to chronic gastritis for some time, three months pregnant; from constipation of the bowels and free living.

5. A female, aged fifty, stout and plethoric, a free liver, subject to habitual constipation—digestion troubled for some years—but for three years, since the menstrual discharge has ceased to appear, much worse. The symptoms became acute from no assignable cause.

6. A female, aged thirty, single, rather delicate, menstrual discharge generally scanty, subject for some time to pain at the epigastrium after food, worse than usual for fourteen days before the acute symptoms set in.

7. A female, aged thirty-three, delicate, confined six days with her first child; from drinking brandy and water.

8. A female, aged nineteen, stout and plethoric, menstruated at fifteen, but only for a short time and in an irregular manner. During the last twelve-months she has had frequent attacks of hæmorrhage from the nose of a very troublesome character, lasting several days, and has twice vomited blood. During the last attack of vomiting of blood, being faint and low, brandy was freely given. Pain in the stomach was induced, which soon increased in severity.

9. A female, aged twenty-three, married, but without children, subject for some years to gastrodynia for two or three days before the appearance of the menstrual discharge. From fatigue and exposure to wet and cold while suffering from an attack of gastrodynia, the menstrual discharge was checked, and gastritis developed itself.

Zucati and Bourrichique* each mention an instance of gastralgia passing into gastritis. Hope (*Morbid Anatomy*) has recorded the case of a widow, aged thirty-six, whose menstrual discharge was checked by fright; gastrodynia set in, for which she took brandy and water, which induced gastritis.

10. A male, aged nineteen, from excesses in drinking to which he was unaccustomed.

11. A male, aged thirty-three, habitually given to drinking in excess, and long subject to chronic gastritis, which from time to time passed into acute.

* Trink, *Histor. Cardialgia*, 121.

The last attack, which proved fatal, had been excited by a debauch.

12. A male, aged seventy, after fasting for more than a week: the eating of a large quantity of meat and potatoes excited the disease, which proved fatal.

Borrichus (*Bonet Septen Med.* lib. iii.; *De Infimo Ventric.*, sect. v. cap. 7) mentions a case where it was induced by long fasting! The patient was a male, aged twenty-nine, of strong constitution.

13. In a female, aged nineteen, it was induced by excess in eating when convalescent from inflammatory fever.

Andral (*Clinique Méd.* tome ii. obs. 4) mentions an instance where the same cause induced it in a patient when convalescent from cholera. A number of similar instances, he observes, fell under his notice.

Haller (*Lieutaud Hist. Anat. Med. Sistens*) mentions a case where it was excited by drinking largely of cold water when fatigued and heated; and Hoffman (*De Febre Stomach.*) reports an instance where drinking largely of cold beer when the body was heated excited it. The patient in this case had indulged freely in spirits the day before.

The exhibition of tartar emetic in large medicinal doses, in active congestion or irritation of the stomach, has induced inflammation. Hoffman mentions three instances, in one of which it was given for the purpose of cutting short an access of intermittent fever; in the other two, where the stomach was

greatly oppressed by drink. Anneslie has recorded an instance where it was induced by an emetic given to a soldier in India, who had been for some time labouring under symptoms of disorder of the stomach. Death ensued in all the cases. Dr. Copland (*Dict., art. Gastritis*) states that he has seen two instances where mustard given to produce vomiting induced the disease. An instance has fallen under my own notice where a like result followed two table-spoonsful of this substance given to a delicate man suffering from dyspepsia.

A case is recorded in the *London Medical Repository* for 1788, where a wineglassful of a strong preparation of horseradish induced fatal gastritis.

Bischoff (*Darstellung der Heilungs Method*) met with a case where a soldier, aged twenty, was seized, after drinking largely of beer and brandy, and eating plentifully of salad with strong vinegar, with inflammation of the stomach, œsophagus, and air passages, which ended fatally.

Morgagni (*De Sed. et Caus. Morb.*) relates the case of a woman who was seized, after eating pickled onions and bread made from chestnuts, with gastritis, which proved fatal in three hours.

In Hot Climates.—The exhibition of emetics, indulging too freely in indigestible or unripe fruits, drinking to excess, and high living, seem to act as the most frequent exciting causes. Anneslie observes “that recruits newly arrived in India are, from their indulging freely in raw indigestible fruits

and spirits after their long confinement to ship's allowance, particularly liable." The same may be said of sailors, but they seem less susceptible than soldiers.

CHANGES OBSERVED AFTER DEATH.

1. *In the Mucous Membrane.*—The changes met with were rather numerous. The colour of the membrane is invariably deepened, ranging from a dark pink to a deep venous hue. Its consistence is sometimes natural, sometimes increased, the villi large and prominent; sometimes, on the other hand, its consistence is diminished, and it is easily detached by pinching with the forceps or by scraping with the edge of the scalpel from the subjacent cellular tissue; in a more advanced stage it is reduced to a pulpy or diffuent state, and more or less thinned, allowing the cellular tissue to be seen, more or less greyish-blue, or pearl-like, according to the amount removed. The fundus is the part where the thinning and pulpy state is most frequently observed: it is invariably accompanied by a state of marked acidity.

The mucous follicles are sometimes found distended with mucous, their borders thickened, sometimes slightly ulcerated. In other cases the membrane is studded with a number of small ulcers, varying in size from a split pea to a silver penny-piece; sometimes, instead of several, one large ulcer is found. Haller (*Lieutaud Hist. Anat. Med.*), Andral (*Clinique*, tome ii. obs. 6, and Gluge (*Atlas*

der Pathol. Anat. 17 Lief. tafel 4) have each reported a case where a large ulcer was found. The sub-mucous and the muscular coats are constantly implicated when ulceration is met with.

False membranes are rarely found. Howship is the only author who has observed them. He met with them attached, fringe-like, here and there to the rugæ, in a youth who died on the fifth day, and in a child.

2. *In the other Tissues.*—When the inflammation affects the whole of the tissues, in addition to the mucous coat, the sub-mucous cellular tissue, the muscular, and sometimes the peritoneal, are affected. The vessels are enlarged and distended with blood, the tissues thickened and infiltrated with serum, lymph, and sometimes pus and blood, and more or less softened. In one case serum and lymph were found, the last existed in some parts alone, in others mixed with pus; in other cases pus alone was found, sometimes in small collections varying in number from three to twelve, and in size from a pea to a Windsor bean; sometimes as single depôts, containing from 4 ounces to half-a-pint, or even a pint. In one case the mucous coat was completely separated from the subjacent tissues by pus: it had been thrown up during life.

SYMPTOMS.

1. *Of inflammation of the mucous membrane.*—The symptoms, when not induced by irritants, or super-

vening on chronic gastritis, are generally ushered in by feelings of general lassitude, pains in the limbs, head, or back, oppression at the epigastrium, sense of chilliness, alternating with flushes of heat, succeeded by constant heat, more or less developed; pain in the region of the stomach, with tenderness on pressure, nausea and vomiting incessantly of everything taken. The pain is sometimes acute, but more frequently it is either obtuse, burning, or contracting, the introduction of food or fluids greatly increasing it and exciting vomiting, first of the *ingestæ*, then of watery mucous, clear, insipid, or acid; yellow and bitter, or red from the presence of blood. The thirst is invariably severe, the skin dry, its temperature raised, but not to any great degree, unless the disease is extensive and severe, the pulse quick, the breathing difficult, the bowels confined, the urine high-coloured and scanty. The tongue white and flabby, or red, clean and dry, or coated with white or yellow fur, sometimes covered with *apthæ*—the saliva more or less acid. When the inflammation is seated at the cardiac opening, troublesome and distressing hic-cough often exists, or a difficulty to the introduction of substances into the stomach from a state of spasm of the muscular fibres of this opening. The patient in these cases complains of pain to the left of the ensiform cartilage, increased by taking food and fluids, which are immediately returned by regurgitation, followed by retching and vomiting.

2. *Of general inflammation.*—In addition to the above symptoms, which, in these cases, are more rapidly developed and more intense in character, the pain is generally extensive, extending into the right and left hypochondriac regions and down to near the umbilicus; insomnia exists with delirium and agitation, often with cramps of the extremities; in one instance,* the patient became a short time before death quite rigid. The skin is usually hot, the pulse rapid, but not strongly developed; sometimes the heat of the first is but little or only irregularly developed, while the last is depressed and small. The face, in some cases, assumes an earthy or bilious aspect, in others it is livid and puffy, or pale and pinched, and the eyes retracted. The strength fails rapidly, and in a few hours the exhaustion becomes extreme. The vomited matters at first present the same appearances as in the other form, but as the disease advances, they change, becoming sometimes dark and thick like tar, or brown and watery, containing lymph in shreds, or black particles of altered blood. The odour of the ejected matters also changes; it becomes faint and sickly, or cadaveric.

Death in some cases takes place in the midst of convulsions, while in others, where the face is livid, coma is gradually, sometimes rapidly established, and the patient sinks. In others, again—and this is particularly observed when the features become pinched and pale—the patient expresses himself as

* Auvert. Select. Praxi. Medico-Chir. Tab. xcv.

feeling much better, suffering only from weakness and a want of food; death generally takes place suddenly, when attempting to sit up, or eat, or while speaking or drinking.

This form of the disease sometimes occurs, on the sudden suppression of inflammation of some other part. Children suffering from erratic erysipelas are occasionally attacked with it, and patients labouring under acute gout.

Dr. Stokes (*Encyc. Pract. Med.*, art. *Gastritis*), mentions an instance, where it occurred on the sudden disappearance of inflammation of the lower lobe of the left lung, and Mr. Howship (*Practical Remarks on Indigestion*,) speaks of a similar result ensuing in a case of inflammatory fever.

3. *Phlegmonous Inflammation*.—This form of inflammation is less frequently observed than the other two. The following cases are the most complete of those which have been recorded.

(1.) A soldier, aged twenty-two,* complained of severe pain in the epigastrium, with constant vomiting. His pulse was small and hard, tongue livid and dry, skin cold, bowels confined. He vomited a pint of pus in my presence, and the pain soon afterwards shifted to the umbilicus, and remained fixed there. He was bled to 100 ounces during the next twenty-four hours, and cathartics were given, by which several motions containing pus were obtained. He

* Callow, Medical and Physical Journal, vol. iii. 1824.

appeared much better on the afternoon of the second day, but he suddenly expired during a fit of vomiting.

The intestines were covered with pus, which was seen to ooze from under the stomach, from a lacerated opening on its posterior wall near the lesser curvature—a considerable part of the walls of the stomach surrounding the pylorus and about the lesser curvature were disorganized. He had made no complaint, further than that of late he had lost strength, until the morning he entered the hospital.

(2.) A male aged fifty,* addicted to drink since youth, subject for the last ten years to attacks of painters' colic and disease of the skin, was seen suffering from severe pain under the ensiform cartilage and in the left side. His face was pale and covered with cold sweat, tongue as if it had been cauterized with some caustic fluid, respiration difficult, pulse small and quick, constant hiccough, and frequent vomiting of mucous. He continued in this state six days. Then violent cough set in with a sense of suffocation, followed by vomiting of foetid pus,—the same was also passed from the bowels. The next day he was in the same state, but for the ensuing seven he was better. On the fourteenth day from the commencement of the disease, a feeling of burning heat was experienced extending from the pharynx to the stomach, accompanied by pain in the epigastrium, hiccough, nausea and vomiting. A

* Lefaucheaux Jour. Gén. de Méd. 1805.

large portion of membrane, with a considerable quantity of blood, was brought up. On the succeeding day more membrane was discharged, resembling three-fourths of the stomach in shape, with longitudinal and transverse muscular fibres and cellular tissue attached. He seemed to improve somewhat after this, but on the ninth day from the discharge of the membrane he died. The stomach contained clots of black blood, and a small quantity of pus; its great extremity was of a deep red, and its walls thin. The pus was found to come from an abscess surrounding the spleen.

3. A man* addicted to drink, had been for years subject to attacks of pain in the stomach and vomiting, lasting from two to three days; then better, then worse again; stomach at times tender; bowels generally confined. For the last two years the attacks had been much more frequent and severe, and attended with feverish symptoms. He has always been relieved by change of air, and after spending three months in Scotland he had no attack for six months.

He was taken one day with pain, and in the course of a few hours felt sick. When seen, his pulse was 120, small and weak; skin hot; tongue white; and he complained of great pain and tenderness at the stomach. Salines and a blister ordered. Next morning, he had sunk into a state of insen-

* Howship.

sibility, alternating with slight convulsions, and died in the evening. The walls of the stomach were found very thick ; and between the mucous and the peritoneal coat, pus with lymph and serum. In some parts pus alone was found ; in others lymph.

The works of Borrel, Lieutaud, Bauhin, Riolan, and Guy-Paten, contain examples of this form of inflammation, but they are too briefly reported to be of any practical value. The cases were invariably of a chronic character. Borrell's patient, a gold-beater, had slow fever, frequent cough and expectoration. Bauhin's patient, a girl, had severe pain in the region of the stomach, with frequent attacks of fever. The disease lasted several months. After death an abscess was found in the pylorus and in the duodenum, the surrounding parts were much thickened. In the following case reported by Dr. Layard in the *Philosophical Transactions* for 1749-50, the history is rather more complete.

A female aged seventeen, was taken in November, 1745, with profuse sweats, which, at last, yielded to the elixir of vitrol.

Obstruction of the menses followed, with short breath, dry cough, and acute pain in the left hypochondrium, rigors, &c. When seen the following February, a large prominent tumour was felt on the left side, extending to the right, filling the epigastrium, where she had constant acute pain ; the pulse was quick ; she had thirst and difficulty of breathing. Liquids were returned with great pain, from an ob-

struction at the lower part of the œsophagus. She was supported by glysters. On the 18th of March, the pain in the stomach became suddenly severe, and she fainted; on recovering, she uttered a piercing cry, and immediately afterwards vomited up two pounds of pus, and passed four quarts from the bowels. The discharge gradually diminished and she got well.

DIAGNOSIS OF ACUTE GASTRITIS FROM ACUTE
DUODENITIS.

Acute Gastritis.

1. Pain situated in the epigastrium. It is never very intense, unless it has been excited by some powerful irritant.

2. Matters vomited or the evacuations from the bowels, rarely very bilious. The vomited matters never assume a fæcal odour.

Acute Duodenitis.

1. Pain situated along the margins of the right false ribs, and extending down towards the right of the umbilicus. It is very intense when it has been excited by the impaction of a gall-stone.

2. Matters vomited and the evacuations from the bowels, unless complete obstruction to the entrance of bile into the duodenum exists, loaded with bile. The matters vomited invariably assume a fæcal odour and colour when the inflam-

mation is situated low down in the duodenum with obstruction.

3. Jaundice never occurs, although the skin assumes sometimes a faint bilious tinge.

3. Jaundice is of constant occurrence, though often not very strongly pronounced, unless the obstruction to the entrance of the bile into the duodenum is great.

TREATMENT.

This must be regulated by the severity of the symptoms. If they are severe, it will be advisable to apply leeches, blisters, or bladders filled with pounded ice to the epigastrium; to place the patient in a warm bath every six or eight hours, and confine him to plain or toast and water, barley-water, weak chicken, veal, or mutton broth, &c. The remedial agents which seem to be of the most service are, tincture of aconite, with bicarbonate or nitrate of potash, mucilage of acacia, hydrocyanic acid, tincture of henbane, and sometimes opium or morphine.

The introduction of irritants into the stomach should be avoided. The bowels should be regulated by the use of enemata. When the stomach is very irritable, it will be advisable to have recourse to opium suppositories, and if the strength fails, to administer injections of beef-tea—with wine, every six or eight hours.

CHAPTER II.

SOFTENING OF THE STOMACH.

THIS lesion or change is met with under three circumstances.

1st. As digestive softening, in persons who die suddenly when the process of digestion is going on, or who sink after a few hours illness, if the stomach contains food in a semi-digested state. It is sometimes observed in those who sink suddenly while labouring under chronic, sub-acute, or acute diseases; but it is never very strongly marked in these cases, seldom extending beyond the mucous membrane, and is invariably confined to the fundus,

2ndly. As inflammatory softening.—This seems to occur under two forms. 1st, as a result of inflammatory action, resembling softening of the brain or any other organ in which the elements of inflammation and the destruction of the normal tissues can be discovered by the microscope. This form is generally local, and is met with under the form of acute local ulceration, or as patches of softening varying in size from a sixpence to a five-shilling piece. 2ndly, as a change resulting from the action of the gastric juice, during life, on tissues which have lost their vitality from inflammation.

3rdly. As an after-death change.—In this form all the tissues of the stomach, particularly the muscular,

are unusually soft, but there is no loss of substance. It invariably co-exists with softening of other organs, and is met with in purpura, scurvy, and fevers of an adynamic character.

CAUSES.

I. PREDISPOSING.—*Age and Sex.*—Children are much more predisposed to this disease than adults, and the predisposition is more strongly pronounced from the third up to the eighteenth month than at any other period of life, as will be seen from the following table :—

Before	3 months	.	.	5 cases	{ The first was 3, the second 11, the third 13 days old; the fourth 9, the fifth 10 weeks old.
Between	3 and 6 months	.		20	
„	6 „ 9	„	.	14	
„	9 „ 12	„	.	12	
„	12 „ 15	„	.	4	
„	15 „ 18	„	.	5	
„	18 „ 21	„	.	6	
„	21 „ 24	„	.	1	
„	2 „ 3 years	.	.	4	
„	3 „ 4	„	.	4	
„	4 „ 5	„	.	4	
„	5 „ 6	„	.	2	
„	6 „ 9	„	.	5	
„	9 „ 12	„	.	4	
„	12 „ 15	„	.	5	
„	15 „ 18	„	.	5	
„	18 „ 21	„	.	12	

Between 21 and 24 years	.	9 cases.
„ 24 „ 27 „	.	6 „
„ 27 „ 30 „	.	5 „
„ 30 „ 35 „	.	5 „
„ 35 „ 40 „	.	3 „
„ 40 „ 50 „	.	5 „
„ 50 „ 60 „	.	6 „
„ 60 „ 70 „	.	4 „
„ 70 „ 80 „	.	1 „

Males seem more predisposed than females to this disease; for out of 127 cases, 70 of the number belonged to this sex.

Certain diseases, states of health, or periods of the year, seem to act as powerful predisposing causes. In *children* a strong predisposition exists during hydrocephalus, tubercles of the brain, tuberculosis, hooping cough, pneumonia, bronchitis, scarlet fever, erysipelas, measles, cow-pock, impetigo, apthæ, diarrhœa, and jaundice. Cheyne (*Essays on Diseases of Children*, ed. 1801), considered that it was apt to occur during the autumnal months, particularly in sultry seasons. Jæger (*Hufeland's Jour. der Pract. Arzneykund*, bd. xxix.), and Dr. Gairdener (*Edin. Med. Chir. Transact.* 1826), are also of the same opinion:—Pommer (*Heidelberg, Klinik. Annal.* 2 bd. 2 Heft., 1826) dry warm weather, alternating with cold showers or misty weather. The latter author has observed that it often exists in connexion with epidemic diarrhœa. Cruveilhier (*Méd. Eclairée and Anatomie Pathologique*) considers that it is apt to exist as an epidemic in the autumnal months, and to occur

in connexion with epidemic follicular enteritis. In several of the cases reported by Camerer (*Magenerweichung*) the children had previously suffered from epidemic diarrhœa.

I am not prepared to say how far the state of the weather can influence the occurrence of this disease, but the mortality is certainly greater in some months than in others; thus, out of seventy-four cases which proved fatal, as will be seen from the following table, the mortality was very small in October, November, December, and January; while in the next four months, February, March, April, and May, it was very great; and the same in the next four months, June, July, August, and September. The months in which the mortality was most pronounced were February, May, June, August, and September:—

In the month of	October	3 cases died	} 10 cases in first four months.
„	November	4	
„	December	1	
„	January	2	
„	February	10	} 34 cases in second four months.
„	March	6	
„	April	5	
„	May	13	
„	June	8	} 30 cases in third four months.
„	July	4	
„	August	10	
„	September	8	

In Adults, the most frequent predisposing causes are chronic gastritis, ulceration of the stomach, cancer of the stomach or uterus, phthisis, tuberculosis, bronchitis, pneumonia, pleuritis, delirium tremens,

fever, cholera, the puerperal state and the diseases which occur during it, particularly peritonitis and uterine phlebitis.

II. EXCITING CAUSES.—In *children* the most frequent exciting cause during weaning or teething seems to be improper or indigestible food; the same causes often excite it during disease.

In *adults*, as in children, the use of improper or indigestible food during disease frequently excites it; while in those in health the use of powerful irritants, such as the bichloride of mercury, tartarized antimony, and drinking spirits in excess, particularly when unaccustomed to them.

The following table, containing the analysis of 123 cases, will show the diseases in which it is most liable to occur:—

	No. of cases.
Hydrocephalus . . .	9
Tubercles of brain . . .	2
Softening of brain (acute) . . .	1
Epilepsy . . .	2
Chorea . . .	1
Delirium Tremens . . .	2
Bronchitis . . .	8
Pneumonia . . .	11
Pleuritis . . .	3
Tubercles of Lungs . . .	10
Hooping Cough . . .	6
Cyanosis . . .	2

{ Fatty degeneration of
the liver existed in
several of the cases.

No. of cases.

Chronic gastritis	.	.	10	{ In four of the cases phthisis existed, in a fifth rheumatism.
Chronic ulceration	.	.	9	
Cancer of stomach	.	.	3	
Diarrhœa	.	.	6	
Cholera	.	.	2	
Scarlet fever	.	.	2	
Erysipelas	.	.	2	
Tetter, and cow-pock	.	.	3	
Small-pox	.	.	1	
Apthæ	.	.	3	
Fever	.	.	7	{ In one case the brain was effected; in a second, bilious symp- toms existed.
Cancer of uterus	.	.	3	
Jaundice	.	.	2	
After delivery	.	.	4	{ In one case the patient was suffering from phthisis.
Puerperal peritonitis	.	.	5	
—— phlebitis	.	.	1	
Tuberculosis	.	.	4	
Retention of urine	.	.	2	
Diabetes	.	.	1	
Disease of kidneys	.	.	1	
Dislocation of hip	.	.	1	
Abscess of elbow	.	.	1	
Total			123	

CHANGES FOUND AFTER DEATH.

Inflammatory softening cannot be always distinguished from digestive softening ; in fact, the last is constantly met with in connection with the first. It may, I think, be assumed as a rule, that no case is ever met with, where the matters vomited during life, or those found in the stomach after death, are acid, but that the softening is as much digestive as inflammatory. Dr. Carswell has given the following valuable means of diagnosing between inflammatory and digestive softening. "The first," he observes, "is opaque, resembling a mixture of flour and water ; the last transparent, resembling this mixture after it has been exposed to the action of heat."

These signs cannot be always recognised, from the tissues affected with softening being often completely dissolved by the action of the gastric juice, during life or after death ;* again, a state of intense injection, or the intermixture of blood, may render it very difficult to determine whether the softened parts are opaque or transparent. Its determination is, however, of no material consequence, for redness and sanguineous infiltration of the organ rarely exist without inflammatory symptoms during life, although they may have been so slight as to escape attention.

* The powerful solvent action of the gastric juice on dead animal structures, points it out as a valuable application in sloughing and phagedænic ulcers, senile gangrene, &c.

The mucous membrane is first affected, although in some cases the other tissues seem to become nearly simultaneously implicated from infiltration or imbibition. In the least marked form, this membrane, which is generally found thickened and mammelated, particularly when chronic or subacute gastritis has existed, can be raised from the subjacent cellular tissue by the forceps, sometimes by the finger and thumb, in flakes or strips, which are easily torn and crushed. In a more advanced state it is found of the consistence and tenacity of thick paste or mucilage, and is easily removed from the subjacent cellular tissue, by the edge of the knife or by a stream of water; sometimes it is found partially, sometimes completely removed.

In a still more advanced state the mucous, sub-mucous, muscular and peritoneal coats, are reduced to a state resembling cardboard, which has been soaked for some time in water—the slightest touch causing them to give way. Sometimes they have been removed in succession, a thin gauze-like portion of the peritoneal one alone remaining. Sometimes the destruction has been complete, and a communication exists between the cavity of the stomach and the peritoneum—a ragged hole varying in size from a seven-shilling piece to the palm of the hand being found. The organs in immediate contact are found more or less softened and corroded, from the direct contact and imbibition of the fluid which has escaped from the stomach; hence it is common to find the spleen, or the under side of the liver, reduced

to a pulpy state, the diaphragm softened and corroded, and the pleura and the lungs, when the last is much affected, also implicated. In this form, perforation or rupture seems to take place but rarely during life, as death supervenes before all the tissues lose their vitality, and become susceptible to the action of the gastric juice. There is, however, a form of the disease in which perforation is of constant occurrence during life; namely, acute local softening, which may occur either as a primary disease or secondary in chronic ulceration. In it the perforation is found surrounded (particularly when the disease is primary) by a ring of softening, often emphysematous, of variable magnitude, and more or less pronounced.

The colour of the softened parts varies,—it may be grey, opaque, or transparent, with a black or brown network, formed by the blood altered in the vessels by the action of the gastric juice; chocolate, approaching to black, when congestion has existed; brown or black, when infiltrated with blood. Sometimes a red blush or brown line is found, marking the point of separation of the diseased from the healthy, though perhaps softened tissues.

SYMPTOMS.

These may be arranged under two heads: 1st. As softening of considerable extent occurring as a *primary, concomitant, and consecutive or terminative* affection. 2nd. As softening of small extent, inducing perforation of the walls of the organ.

1st. *Softening of considerable extent, as a primary affection.* This form is far more frequently observed in children than in adults ; in them however, it is not so frequently observed as the concomitant and consecutive forms.

It commences with distension of the abdomen, tenderness and pain, great restlessness, frequent fits of crying and sleeplessness. The tenderness is not very accurately defined, but the child cries when the abdomen is pressed and when it is moved, and its legs are often kept constantly flexed. Vomiting also exists, either of the milk in a curdled state, or of the food mixed with acid mucous, and with it there is generally diarrhœa, the evacuations being generally green and slimey, but sometimes clayed, ochery, or like cabbage water, often containing food in a semi or non-digested condition. In some instances, there is neither vomiting nor diarrhœa until towards the close of the disease. Sometimes vomiting or diarrhœa alone exists throughout. The appetite generally fails, but sometimes it is very ravenous, and the food taken is often immediately rejected ; there is always marked and unassuagable thirst ; the face is pale, and as the disease advances it becomes extremely pallid and wax-like, or of a dirty yellow ; there is marked and rapidly increasing emaciation, with extreme languor and debility—feeble respiration, generally slow, but sometimes increased—small pulse, sometimes quick, but more generally slow—tongue coated with white fur, its apex and edges red, sometimes it is generally

red, moist at the commencement of the disease, becoming as it proceeds dry and brown, ulcerated or covered with aphthæ; the last sometimes exist from the first, or even precedes the development of the disease—the urine is scanty, high-coloured, and often very offensive—in some cases it ceases to be secreted towards the close of the disease; the skin is harsh and dry, its temperature but little raised, sometimes depressed; towards night, however, there is often some increase in its temperature and perspirations, with flushing of the cheeks—increased frequency of the pulse, thirst and restlessness.

As the disease advances, the restlessness and crying is succeeded by a state of semi-coma, low moaning cries are uttered, sometimes incessantly, sometimes at intervals, and the pulse and respiration become nearly imperceptible, the anterior fontanel depressed, the eyes half open and the pupils largely dilated. Death takes place sometimes slowly and insensibly, sometimes it is preceded by convulsions or by a state of general rigidity.

The feet and legs often become anasarcous towards the close, and sometimes fluid collects in the peritoneal cavity. The disease does not always pursue a rapid or steady course, but rather a chronic and an irregular one; neither does it invariably prove fatal. In many of the cases which ultimately proved fatal, there was a marked amelioration observed, often for days, or even weeks; the vomiting and diarrhœa disappeared or diminished very much, but the thirst

often continued, and the emaciation went on increasing.

From the introduction of some improper article of food or drink, the symptoms often became aggravated suddenly, and the disease ended often very rapidly in death. In *adults*, this form of the disease, as a *primary* affection, is but seldom observed. I have seen but one case.

1. A single female, about forty years of age, was brought into the workhouse infirmary on the 17th of October, 1849. She complained of severe burning, with great oppression in the epigastrium, and *intense* thirst. Her face was anxious, eyes brilliant, skin warm, pulse weak and quick, heart's action tumultuous, tongue of a deep red and very dry—her manner agitated, hands tremulous, voice faltering. The abdomen was retracted, but the epigastrium was somewhat tender. But little could be gleaned of her previous history, beyond that she had suffered for some time great privations, in consequence of her health having failed, which prevented her from working. An opiate was ordered her, with a mustard poultice to the epigastrium; milk and mutton broth for diet.

18th, eight A.M.—The opiate had been followed by some slight relief. The agitation had increased—she talked incessantly and incoherently, and rolled about the bed. When spoken to she answered briefly and rationally, but immediately relapsed.

The thirst continued the same, and when ques-

tioned she complained of the burning sensation and oppression at the epigastrium. Porter and opium ordered. She passed the rest of the day and part of the night in the same state. Towards morning she got out of bed and walked the ward for some time. She then laid down and soon afterwards expired.

The post mortem examination was not made until the third day. The fundus of the stomach presented an opening capable of admitting three of the fingers. Softening to a considerable extent existed in other parts of the organ, but it was most pronounced in the fundus and on the posterior wall. The organs in contact with the softened parts were also affected, and the fluid which had escaped from the stomach had produced the same action on the walls of the intestines.

The lungs contained tubercles; but there was no trace of any other disease.

2. A male,* aged twenty-two, entered suffering from headache and epistaxis, to combat which a large number of leeches were applied.

April 27th.—Face flushed; epistaxis considerable; slight stupor; tongue dry; bled.

30th.—Better.

May 1st.—Face sorrowful; extremities rigid; pulse nearly natural; he put out his tongue when requested, but left it there; answered questions readily.

2nd.—Drowsiness and slow respiration; blisters.

* Cruveilhier Anatomie Pathologique.

3rd.—Agitation; walked about; demanded food; thirst, until now natural, became insatiable; no pain.

4th, 5th, and 6th.—The agitation continued; pulse quick; intelligence perfect; respiration quick; thirst unextinguishable.

7th.—Agitation; members rigid; eyes wide open; pulse small and quick; respiration quick; hears, but cannot reply. Death on the 9th.

Post mortem.—There was no cadaveric change. A small ulcer existed near the ileo-colic valve; the great intestines were distended; the anterior wall of the stomach near the great extremity was soft and transparent, and on the point of giving way. At this time acute epidemic follicular enteritis raged.

3. A female,* aged thirty-five, entered on the 28th of September, in a state of great prostration and suffering. She had no local symptoms, but complained of intense thirst; her pulse was quick; tongue dirty; abdomen soft and indolent. She had worked very hard, and had been much exposed to heat and cold.

30th.—Considerable diarrhœa; some stools were passed involuntarily.

October 1st.—State greatly aggravated; face contracted; voice plaintive; tongue brown and dry; pulse quick and small.

2nd.—Worse; slight pain in both iliac regions.

* Andral, cited by Cruveilhier.

3rd.—At two P.M. she was taken suddenly with colic, and her abdomen became distended; she got better, but the abdomen continued hard; the superior extremities were rigid.

6th.—Abdomen distended; pulse feeble; diarrhœa frequent.

7th.—Abdomen distended, but the stomach contracted, and not sensible; demanded food; thirst intense.

12th.—Upper lip swollen; side of tongue ulcerated.

13th.—Was taken suddenly with a sense of suffocation; the abdomen became like a drum and double its usual size, and death ensued from asphyxia.

Post mortem.—The abdomen large; when opened gas escaped. The intestines were united by recent false membranes; they were covered with red and dirty green spots and a number of membranous shreds of the colour and odour of the fæces. There were three small perforations at the arch of the colon; the surrounding parts were thinned, and the follicles of the small intestines were enlarged, and at a short distance from the ileo-colic valve there was a small ulcer. The mesentric glands were tumified, some of them contained pus. The stomach in its great extremity was gelatinous.

As a concomitant affection.—In adults it is met with in connection with pneumonia pleuritis, bronchitis, softening or tumours of the brain, phthisis,

diabetes, disease of the kidneys, tuberculosis, retention of urine, cancer of the womb, stomach, and liver, continued and puerperal fevers, puerperal peritonitis and phlebitis, and delirium tremens. In diseases of an acute character it assumes the acute form, even when it does not occur until after convalescence has set in ; but in those of a chronic character, such as phthisis, cancer of the liver, womb, and stomach, diabetes, diseases of the kidneys, and tuberculosis, it takes on a chronic character. Sometimes, however, there are marked accessions of aggravation, and towards the close of life it often becomes acute.

The symptoms, when the disease occurs during acute inflammation of the organs within the chest, acute fevers, and diseases of the brain, are often of a latent character ; there is extreme depression of strength and pulse ; weight at the epigastrium, intense and *unassuageable* thirst, sometimes vomiting and diarrhœa ; pain or tenderness on pressure over the epigastrium being absent, or scarcely marked. When it occurs, however, during convalescence from acute diseases, or is suddenly excited during chronic, the symptoms are then fully pronounced and easily recognised. There is pain or weight in the epigastrium increased by the introduction of solids and by pressure ; intense thirst ; generally complete anorexia ; fever not strongly marked ; great depression of strength and of the pulse ; the last is often very quick ; emaciation extreme and increasing ; sometimes nausea and occasionally vomiting ; bowels

generally confined, but sometimes relaxed. Under whatever circumstances it occurs it seems to entail invariably a fatal termination.

In *children* it is met with in connection with hydrocephalus, bronchitis, pneumonia, whooping cough, cyanosis, scarlet fever, measles, erysipelas, inflammation of the cellular tissue, dentition, enteritis with or without jaundice and tuberculosis. It assumes in these diseases almost invariably an acute or a sub-acute form, and except in hydrocephalus, in which it is sometimes masked; it is easily recognised, and the symptoms are generally fully developed, in some cases however, more fully than in others.

When strongly marked, or when the disease in which it occurs is severe, it invariably proves fatal.

As a consecutive or terminative affection.—The disease is rarely observed as a consecutive affection in children, when it is, it is generally after measles, scarlet fever, or some other disease of the skin; in adults it is however, frequently observed, particularly in chronic inflammation and chronic ulceration of the stomach, cholera or disease of the lungs, heart, or some other important organ. When it occurs consecutive to chronic inflammation of the stomach, it may either assume an acute or a chronic form. When it assumes the *acute form*, it is generally in consequence of exposure to wet and cold, over-fatigue, bad food, excesses in eating and drinking, the exhibition of large doses of tartar emetic, or some other irritant medicine. When it assumes the

chronic form, it generally occurs in connection with phthisis, chronic bronchitis, disease of the heart, particularly of the right side, or disease of some other organ, by which a state of increased vascular excitement of the mucous membrane of the stomach is induced.

In the *acute form*, the symptoms are essentially those of acute inflammation of the mucous membrane. There is pain on the epigastrium, sometimes burning, sometimes dull and heavy, sometimes constricting, increased by the introduction of food and drink, and by pressure: the thirst is severe, the tongue sometimes large, white and flabby, with the papillæ more or less prominent: and sometimes of an intense red generally, dry and as if excoriated, or with a streak of white or brown fur on each side; sometimes it is red only at its apex and sides, its centre coated with white fur, the papillæ on its posterior part often large and prominent; apthæ or ulcers are sometimes present. In some cases there is only nausea, in others there is both nausea and vomiting, the vomited matters consist of the food or fluids taken and mucous or watery fluids generally highly acid, sometimes mixed with shreds of lymph. The saliva is acid. The bowels are generally confined, the motions scanty; sometimes however, diarrhœa exists or it occurs during the progress of the disease; the urine is scanty, sometimes pale, sometimes high-coloured and loaded with sediment, the pulse small

and without much power, ranging from 90 to 120—sometimes however, it is extremely slow; the skin dry and harsh, its temperature not greatly developed, it often assumes a yellow or an earthy tinge; the abdomen flat, but the epigastrium is sometimes distended; the feebleness is generally extreme, and there is marked emaciation, and if the symptoms are severe it increases rapidly; the mental faculties are generally intact; but there is often a marked indifference to the result of the disease, and as the disease progresses, delirium of a tranquil character appears, or the patient sinks into a state of semi-coma. Death takes place, sometimes slowly, sometimes suddenly, and often after a marked improvement in the symptoms.

In the *chronic form* there is often no very marked amount of gastric derangement. The most constant and prominent symptoms are great feebleness of pulse, loss of appetite, *intense* thirst, heat and oppression at the epigastrium, harsh dry skin, emaciation and feebleness. Death sometimes ensues rapidly, particularly if the powers have been previously much reduced, sometimes not for several weeks.

2nd. *As softening of small extent and terminating in perforation of the walls of the organ.*—In this form of local softening the symptoms which precede the occurrence of perforation, are often absent, or they are so slightly marked as to escape notice.—*See Perforation of the Stomach.*

TREATMENT.

In *children*, the administration of the bicarbonate of potash, with tincture of opium and mucilage, seems to be of the most service. I have given the acetate of lead combined with opium in minute doses with marked and rapid relief. Under the use of the last the sickness and diarrhœa have subsided in a short time; the motions have assumed their natural hue, the thirst diminished, and the recovery, if the disease has not approached the last stage, or has been uncomplicated with disease of some organ not of itself fatal, has been rapid.

The greatest attention must be paid to diet, not only as to its nature, but also as to the quantity given. Weak beef, mutton, or chicken broth, baked arrow-root, or rice, seem to be the best articles of food. The baked arrow-root or rice should be made without milk, if the last disagrees; if it does not, it alone diluted with water and sweetened with sugar will form the best article of food which can be given. If the child is not too old, placing it to a healthy breast is often of great service. In giving nourishment, care should be taken that too much at a time is not given. The rule should be that no more should be given than the stomach will retain. Therefore if it will not retain a table-spoonful given every hour, one tea-spoonful should be given every half-hour. In chronic cases change of air or residence is generally advisable.

In *adults*, the treatment laid down for acute gastritis should be employed, due care being observed not to depress the powers by the too free abstraction of blood or the use of calomel. It should be borne in mind that the disease is one of debility, and that carefully supporting the strength will be most likely to assist recovery or prolong life.

CHAPTER III.

CHRONIC GASTRITIS. — *Chronic Inflammation of the Stomach.*

SYN.—*Pain after Food. — Difficult or Painful Digestion. — Chronic Indigestion. — Chronic Dyspepsia.*

VARIETIES.—1. *Chronic Gastritis attended with thickening and induration of the Coats of the Stomach.*—2. *Chronic Gastritis attended with ulceration (Ulcerative Gastritis).*

CAUSES.

I. PREDISPOSING.—*Sex and Age.*—Females are much more predisposed than males to this disease, for out of ninety-seven cases which have fallen under my notice sixty of the number belonged to this sex.

With reference to the periods of life when the greatest liability exists: in males it seems to be from twenty-five to seventy; in females from twenty to fifty-five. In the females and sometimes in the males the disease had frequently existed for a number of years before they came under my notice as “fits of painful or difficult digestion” lasting from one to several months, when they disappeared, sometimes spontaneously, sometimes from the employment of remedial measures, for months or even years. The following table will show the ages of the patients

when they came under my notice, without reference to whether they had suffered before or not : —

	Males.	Females.
From 20 to 25 years	2	4
" 25 to 30 "	3	7
" 30 to 35 "	6	10
" 35 to 40 "	6	12
" 40 to 45 "	5	9
" 45 to 50 "	4	6
" 50 to 55 "	3	9
" 55 to 60 "	1	2
" 60 to 65 "	3	1
" 65 to 70 "	4	—
	37	60

In *females* the disease often depends upon hereditary predisposition. It was observed in fifteen of the sixty cases; in eleven of the cases the mothers had suffered—in four the fathers. Sedentary occupations or habits act as powerful predisposing causes. Hence the disease is frequently observed in needlewomen and servants, particularly in those who suffer from habitual constipation of the bowels; suppressed, scanty, irregular and sometimes profuse, menstruation. In servants ascending long flights of stairs rapidly, and active exertion immediately after heavy meals, act as powerful predisposing causes. Mental anxiety, particularly if long-continued, seems to act also as a powerful predisposing cause.

It is usually considered that a stronger predisposition exists to this disease during single than married life. This seems, however, to depend less upon a life of celibacy than upon the occupation followed, mode

of living, state of the bowels or uterine functions. Eating largely and frequently of rich indigestible food, drinking freely of malt liquors and rich wines, an idle life, and frequent attacks of simple dyspepsia, act as powerful predisposing causes.

Of the sixty cases where the patients were females, which have fallen under my notice, twenty-one were single and thirty-nine married; thirty-one of the last had had families of from one to eight children.

Of the twenty-one single cases, twelve were needlewomen—shoe-binders, bonnet-makers, dress-makers, &c.; of the remaining nine cases, six were servants—housemaids or servants of all work; the other three had no occupation. Of the thirty-nine married cases, fourteen were needlewomen; of the remaining twenty-five, twenty had their families and households to attend to; the other five had no employment.

In *males*, the predisposing causes are sedentary occupations, certain positions of the body, particularly sitting with the trunk bent forward, as tailors, writers, and shoemakers are accustomed to do; pressure on the pit of the stomach with bootmakers while “building the heels of boots,” inactive habits, particularly in those who live freely and eat largely or frequently; long fasting, followed by rich indigestible meals, and drinking freely of wines and spirits and water, particularly in those exposed to much mental anxiety; active exercise immediately after a full meal; habitual constipation; frequent attacks of dyspepsia; the free use of raw spirits. I have fre-

quently observed that men, who, from being free drinkers, have become abstainers, often suffer from this disease, in consequence of passing from drinking copiously to eating largely. The following table will shew the occupations of the thirty-seven male cases which have fallen under my notice:—

Shoe or Bootmakers	10
Tailors	4
Shopmen	6
Servants	3
Clerks or Writers	5
Following Sedentary Employments .	5
Publicans	2
No Occupation	2
	<hr/>
	37
	<hr/>

II. EXCITING CAUSES.—The disease is generally slow in its progress, months or even years elapsing before it becomes so severe or continuous as to render the patients uncomfortable, and cause them to seek medical assistance. It may be increased or re-excited if it has existed before by some error in diet, or a debauch, the suppression of some disease of the skin, the healing of ulcers of long standing by external applications, irregularity in the appearance, or deficiency in the quantity, of the menstrual discharge, long continued constipation of the bowels, an active life succeeded by an inactive one, changes in the weather, particularly from cold to heat, from heat to cold, or dry to damp. In one case, the disease

commenced immediately after a fibrous tumour had been removed from the neck of the womb; in two others it followed the suppression of watery purging of some duration; in three others on the cessation, in one instance spontaneously, in the others by applications, of bleeding from piles; in another on the cessation of a periodical bleeding from the nose; in one case, the disease was referred to a blow, in another to a fall, on the pit of the stomach. Great privations and bad food, particularly in those who have been accustomed to a luxurious mode of living, are apt to excite the disease. Hence it is liable to occur in passengers by ships in which the provisions have failed or become bad. German writers consider that the suppression of the perspiration from the feet, either by applications or occurring spontaneously, is apt to excite the disease. The stomach is very apt to become deranged in chronic disorders of the kidneys, in chronic diseases of the dorsal and cervical portions of the spinal cord, and in chronic diseases of the brain, heart, lungs, liver, &c.

CHANGES OBSERVED AFTER DEATH.

1. *In Chronic Inflammation attended by induration and thickening of the coats.*—Few opportunities occur of observing the changes which this form of inflammation induces on the coats of the stomach, from its never of itself proving fatal. The alterations met with are extremely variable; most frequently the mucous membrane is alone affected, the cellular and

the muscular tissues in some instances participating ; sometimes, though very rarely, they are alone affected ; the peritoneal coat is but very seldom implicated.

The mucous membrane in the most simple form is more vascular than usual ; its density somewhat increased, and the vessels ramifying in the subjacent tissues increased both in size and in number. In a more advanced form the membrane presents considerable thickening ; it is mammelated, and its colour is sometimes yellowish-white or white ; sometimes it presents patches of a milk-white colour or a number of cicatrices. In one instance Audral observed red spots in different parts, and a membranous layer of a white colour, " a kind of exudation nearly solidified." A membranous formation has been observed by Guersent, Rullier, and Billard. I have also observed it in a case of chronic ulceration, forming a triangular-shaped fold three inches long and one and a-half broad. In some instances the villi are found increased in size, sometimes several are grouped together, forming excrescences varying in size from a pea to a nut, and in number from one to six ; sometimes, though less frequently, they form fringe-like processes, from one to two or three inches in length, one-twelfth of an inch broad, and from one-eighth to one-fourth of an inch high ; in others the mucous follicles are found distended with thick mucus, their edges thickened, sometimes ulcerated.

The changes generally observed in the submucous

cellular tissue consist of patches of fibrous or cartilaginous formations, varying in size from a one-shilling to a five-shilling piece, and from one-twelfth to one-fourth of an inch thick. The mucous membrane in these cases is nearly invariably altered; sometimes it is quite smooth, sometimes the villi are very large and prominent: the muscular coat seldom escapes; it has generally disappeared, and the formations adhere intimately to the peritoneal coat. The changes found after death do not always correspond with the symptoms observed during life.

A man cook, aged sixty-one,* for some years addicted to drinking brandy, from which he became greatly enfeebled, was taken with diarrhœa, which, after continuing for six months, ceased, and was replaced by obstinate vomiting, which resisted every thing employed. Three months after the vomiting had set in, he entered the Hôpital Cochin in a state of extreme emaciation, where he lived a month in a state of great apathy. A short time before death a tumour, supposed to be on the pylorus, was discovered.

After death the mucous membrane of the stomach was found injected—more pronounced in the cardiac than in the pyloric extremity; the colon contained some hardened fæces.

2. *In Ulceration.*—This has been generally considered as a specific disease, and not, as it is in fact, a result of chronic inflammation. The ulcers vary

* Chardel, Sur les Squirrhes de l'Estomac.

in size from a split pea to a five-shilling piece. The first size is rarely observed, except a considerable number of ulcers exist—a rare occurrence, and met with only when the disease had been excited by the prolonged use of indigestible food, spirits, or irritants: the most common size of the ulcers found is that of a sixpence. In a great number of instances only one ulcer exists; in others two are found, often situated on opposite sides of the walls of the stomach; in others three; in others four (very rarely).

Certain parts of the stomach are more susceptible than others to ulceration. Thus, in 104 cases, the ulcers were seated on the posterior wall in twenty-two; on the anterior wall in thirty-two; on or close to the lesser curvature in twenty-eight; on or close to the great curvature in six; on both the anterior and posterior walls in sixteen.

The shape of the ulcers is nearly invariably oval or round, very seldom irregular; their edges, in some instances, are smooth and sharp, and on a level with the surrounding mucous membrane; in others, the ulcers exist in the centre of depressions of variable size, formed by the healing of the circumference of the ulcers. In the latter cases, and sometimes in the former, thickening and induration exist around the ulcers, varying in extent from a few lines to one or two inches.

The depth of the ulcers varied: in some cases the mucous membrane was only removed; in others, both it and the submucous cellular tissue, exposing the

fibres of the muscular coat ; in some cases this last coat was partly or altogether destroyed, exposing in the latter case the peritoneal coat, sometimes destroying it. Before the last began to be affected, adhesions had generally formed between it and some adjacent organ, as the pancreas, liver, colon, lesser omentum, diaphragm, or the anterior walls of the abdomen. Adhesions with the pancreas were most frequently observed, and when the peritoneum was destroyed, this viscus assisted to form part of the posterior wall of the stomach. In a great number of the cases, when this had taken place, the ulcers had still continued to extend, and this organ presented excavations of variable depth and extent ; in many instances the ulcers had healed in part, sometimes altogether.

This last is one of the most favourable courses the ulcers can take, as it protects the patient, when once the adhesions are fully formed, from all danger from the escape of the contents of the stomach into the peritoneal cavity.

Adhesions with the liver are much less frequently observed than with the pancreas, being prevented from the two organs not being in immediate contact, and from the motion of the stomach during the process of digestion, and its constant change of position. That great attempts have been made to form adhesions may be seen from the long threads of cellular tissue often found passing from one organ to the other ; and that it has sometimes existed for a short time, the thickening on the surface of the liver shows.

It is not a favourable course, even when the adhesions are fully formed ; for if the ulceration continues to extend, abscess of the liver may form, or hemorrhage ensue, from the liver becoming eroded.

Adhesions with the diaphragm, lesser omentum, colon, and abdominal walls, are very seldom observed. The first has been sometimes perforated from the extension of the ulceration, and some of the contents of the stomach have escaped into the cavity of the chest ; the second has been found closing the ulcerated opening in the stomach, like a valve, or plugging it ; the third has been perforated, so that a direct communication has been formed between the stomach and colon ; the fourth has been perforated from the extension of the ulceration, but more frequently a small abscess has formed in the walls of the abdomen (excited by the contact of food), which has broken externally—the fluids drank, and sometimes the food, following immediately, or in a short time. It is in this way that fistula of the stomach is generally formed.

When the ulcer has not formed adhesions, the peritoneal coat is sometimes found forming a small pouch-like prolongation, from half an inch to one and a-half inch in length. In a few instances, the ulcers, instead of penetrating the walls of the stomach in a direct manner, have taken an oblique or sinuous course.

The formation and healing of ulcers.—Cloquet considered that the ulceration commenced around the edges of the mucous follicles. This is no doubt

the manner in which it commences in some instances, but it sometimes begins in the mucous follicles; in the submucous cellular tissue, the mucous membrane becoming destroyed; in the mucous membrane, generally as a result of inflammation—softening, or effusion of serum under the membrane resulting, followed by separation of the membrane. When the mucous membrane has been destroyed, it seems to be restored without difficulty; but when the cellular and muscular tissues have also been affected, some time elapses. If the ulcers were small, cicatrices, like those left on the healing of small-pox, will be observed. If they have been large and deep, a fibro-cartilaginous formation will be found; for, as in the case of wounds on the surface of the body, the loss is never replaced by the proper tissue of the parts.

It is impossible to assign a period when the cicatrices disappear, particularly when the ulcers have been large, much will depend on the age of the patient, the reparative powers being more active at an early than at an advanced period of life; on the habits of the patients, and the absence of any cause likely to determine a state of increased vascularity of the stomach; for ulcers of the stomach, like those of the legs, become worse from very slight causes, and when they have once existed, they are easily re-excited.

In a female aged thirty-six, who had suffered for some years from disease of the stomach, but which

had, however, ceased to trouble her for six years before her death, a cicatrix three-fourths of an inch long, and one-eighth of an inch broad, was found in the centre of a transverse ridge, which divided the stomach into two portions or sacs. It is, I am disposed to think, to the changes induced by the healing of ulcers, that the division of the stomach sometimes met with in females—rarely, if ever, in males—when not congenital, is due, and not, as Sömmering supposed, to the pressure of the busk of the stays. In three cases which have fallen under my notice, where the stomach was divided, the septum sprang from the lesser curvature and the posterior wall, parts quite protected from any pressure that could be brought to bear upon them. The persons (females) were advanced in years; in two of them the ribs had evidently undergone but little pressure from stays; but in the third, the effects of tight-lacing were very marked. Their antecedents could not be obtained. The healing of large ulcers of the stomach will always, from the contraction which they induce, materially alter the shape of the organ.

SYMPTOMS.

I. *Of Chronic Gastritis.*—These present themselves under two states or forms: 1st, severe,—2nd, mild.

In the *severe form*, there is generally constant, dull, oppressive, constricting or burning pain in the epigastrium, increased by the introduction of food. Some kinds more than others, particularly those of

an irritating nature, or those requiring some time to digest ; certain fluids, such as spirits, sometimes wines, tea and coffee, and some malt liquors. There is also great acidity, acid eructations, acid taste in the mouth, flatulence, severe thirst, particularly during digestion, when the craving for cold fluids is often intense, from the feeling of heat in the stomach. Nausea generally exists, and vomiting is of frequent occurrence, sometimes immediately or in a short time after food ; the matters vomited consisting sometimes of food in a more or less digested state, mixed with highly acid mucus or watery fluid, sometimes of the two last alone, without any admixture of food. Sometimes the patient is driven to induce it by passing his finger down the throat, from the great feeling of fulness in the stomach which ensues towards the close of digestion.

There is great tenderness on pressure in the pit of the stomach, particularly during digestion, then the tenderness is often so great that the clothes are obliged to be loosened. From the taking of some indigestible article of food, from confinement of the bowels, wetting the feet, or immediately before the menstrual discharge appears, severe spasms are very apt to occur, lasting, when they have been excited by indigestible food, for days, or until the cause has been got rid of. When they are induced by any other cause, they are generally of less duration, but very severe.

When the *left half* of the stomach is affected, there is often, from the diaphragm becoming sympathe-

tically affected, a feeling of intense weight and constriction at the lower part of the chest, often accompanied by great difficulty of breathing; the heart sometimes becomes affected, and its action is often very much depressed, or very much increased—it is irregular and tumultuous. These symptoms are very apt to occur during the night, lasting from a few minutes to an hour.

From spasm of the cardiac opening of the stomach being very apt to occur when this part of the stomach is affected, obstruction, more or less complete, to the introduction of food or drink, sometimes occurs, but it seldom lasts beyond a few minutes. The tongue will present different states, according to the state of the stomach. When the last is quiet, in some cases it is white and flabby, in others fissured and rather redder than usual, streaked or coated with white fur; the papilla, particularly at its base, prominent and red; but during digestion, or when irritation exists, its edges and apex become red; sometimes its whole surface becomes affected, and it assumes a mahogany or raw appearance. The breath is acid or fœtid, the saliva permanently acid, the urine clear, highly acid, and scanty if the vomiting is severe; the bowels generally confined, the evacuations, when the vomiting is troublesome, scanty, and often frothy or pasty; the pulse is generally small and quick, sometimes slow, feeble and irregular; the skin pale, of a waxy or slight yellow tinge, dry and harsh, and, if emaciation exists, loose and flabby. Towards night there is in most cases a distinct access of fever,

with flushing of the face, followed by perspiration. The hands and feet are generally cold. Coldness of the latter is often a very troublesome symptom, keeping the patient awake, in spite of bottles of hot water, for several hours. The appetite is generally voracious, sometimes depraved. These states often render the treatment employed of little or no avail, from the difficulty experienced in abstaining from what the patients know to be positively injurious.

In the *mild form*, there is generally some amount of pain or oppression, often unaccompanied by marked tenderness, or tenderness confined to one spot, generally most pronounced during digestion, and occurring sometimes immediately, sometimes not until ten, or even thirty minutes, after food has been taken, and more liable to occur after dinner, particularly if the food has been heavy or irritating; sometimes it occurs also after tea or coffee, particularly if much of these beverages are taken, or if they are very strong. Fulness, with flatulent and acid eructations, or heartburn, are also present, and sometimes vomiting occurs towards the close of the process of digestion, and watery insipid or acid fluid, sometimes with thick or frothy mucus, is brought up. Sometimes, when there is inflammation of the pyloric opening, food is also brought up in a digested condition. The patients are often quite free from pain or inconvenience until food is taken, but sometimes they suffer severely from water-brash the first thing in the morning. The tongue may

preserve its natural appearance, or it may be rather pale and flabby, or redder than usual; clean or coated with white fur. The urine is frequently loaded with phosphates, sometimes only at night, sometimes only in the morning; sometimes it is clear and pale; sometimes it contains oxalates.

In some cases there is a copious secretion of mucus from the pharynx after meals, or in the morning. Sometimes there is regurgitation of food, particularly after dinner, the quantity brought up ranging from one to eight or ten mouthfuls. Headache is sometimes present, and the action of the bowels is often irregular; the pulse is but little interfered with, but sometimes there is troublesome palpitation of the heart, and disease of this organ is often suspected to exist. In one case which fell under my notice the patient, a female about forty, had been liable, at times when the gastric disturbance was severe, to fits, of variable duration, of difficulty of breathing and suspended action of the heart. The health rarely suffers in this form unless the disease has been of very long standing; even then there is rarely any loss of flesh; but the muscles become flabby, the mental powers less active, the nerves weak, and the temper irritable.

Ulcerative Gastritis.—The symptoms present in this affection vary considerably. They may be very severe, or be but slightly or not at all marked—the position of the ulcers, and the degree of irritation which they excite, exerting a powerful influence.

When they are seated near the lesser curvature, in its centre, or towards the cardiac opening, the symptoms are generally slight; but when they are near the pylorus the symptoms are generally severe.

The symptoms are invariably those observed in chronic gastritis; but there generally exists, particularly when the ulceration is extending, deep-seated pain — oppressive, boring, pricking, or pulsating; sometimes, however, the only indication of the existence of an ulcer is a feeling of soreness, particularly marked when any stimulant is taken. When the pancreas is implicated, there is generally deep-seated pain in the back, sometimes shooting up between the shoulders, sometimes fixed, and, when it has been of some duration, often causing the patient to bend forward. Deep-seated boring pain rarely exists for any length of time, unless the pancreas is implicated, without either hemorrhage or perforation occurring.

When the ulcer is situated near the pylorus, water-brash invariably exists, and there is frequently, from spasm of the pyloric opening, vomiting of food in a digested and semi-digested state, and mixed with a large quantity of watery fluid. This state is very apt to give rise to the opinion that the patient is suffering from contraction of the opening. Contraction of the opening does sometimes occur, and is induced either by inflammatory deposit around the ulcer, or by the ulcer in healing.

Spasms are very apt to occur in ulceration; in some instances they consist of a feeling of intense

oppression; in others, of pain, fixed or radiating, occurring only when food has been taken, or after a certain quantity, or when the stomach is empty, or when from any cause an increased determination of blood to the stomach has taken place, or mental excitement has been induced.

Tenderness on pressure, unless the ulcers are situated on the anterior wall or near the pylorus, is often absent, particularly when the gastric derangement is slight.

The duration of the gastric symptoms has led writers on this affection to divide it into acute and chronic ulceration. This division was first adopted by Becker of Berlin, in a paper published in *Horn's Archives* for 1824. Cruveilhier also inclines to the same division; for in his *Anatomie Pathologique* he considers a case, in which the gastric symptoms had been observed but a short time before death, as "one of acute ulceration;" while in another, in which they had been of some duration, "as chronic."

This division, rational as it is, cannot be always recognised; for it frequently happens, that when the gastric or other symptoms have been but slightly marked, or of but short duration, before hemorrhage or perforation has taken place, the ulcers have presented every indication of having existed for some time.

In reference to the absence or the presence of symptoms of chronic gastritis, or other symptoms referable to the stomach, the following is the analyses

of 119 cases, in which death ensued from perforation, or from hemorrhage, and will show how frequently ulceration exists unsuspected :—

In twenty-three of the number, there had been no symptoms of gastric derangement ; or if there had, they were so slight as to escape attention. In a few of them slight pain was noticed.

In fifteen of the number, pain alone was observed, either in the epigastrium, more or less deeply seated—in the latter case passing through to the back, sometimes fixed there, particularly when the pancreas was implicated—or in the right side, when the liver was affected. The last was rarely observed, and when observed, it had seldom lasted long.

In eleven of these cases the pain was very severe ; generally it assumed the form of gastralgia or spasms, occurring at irregular intervals, and lasting from ten to fifteen or thirty minutes to several hours, but sometimes the pain was fixed. In the last cases, it lasted from a few weeks to several months ; in one case it was noticed only for ten days.

In a few of the cases, the patients had not suffered from the stomach for some time, when suddenly, from over-exertion, over-reaching, a full or a flatulent meal, immediately before or from the retardation or after the sudden suppression of the menstrual discharge, perforation ensued.

In the remaining eighty-one cases, symptoms of gastric derangement had existed in a mild or severe form for a few days, weeks, months, or years—

frequently for four or five years—in one case for nine, in another for thirteen, and in a third for fifteen.

In the cases where the symptoms of gastric derangement had only existed for a few hours or days before perforation took place, the ulcers were found after death with softened emphysematous edges—in the centre of softened patches, often with considerable softening of the mucous membrane, which in some cases was partially detached.

The symptoms, both in chronic gastritis and in ulcerative gastritis, are very liable to sudden and marked alterations. Sometimes they disappear or diminish very much in severity, for days, weeks, or months, from no assignable cause; and then as suddenly, from an equally unassignable reason, return.

In most cases the symptoms are worse just before the menstrual discharge appears, or if it is retarded or checked by cold or wet, or if it is unusually scanty—occasionally the symptoms are worse while the discharge is flowing. Some females suffer only during pregnancy, some during suckling; while others are quite free during pregnancy, or when suckling.

Slight distension of the bowels often exerts a powerful influence in aggravating the symptoms. The same often occurs from defective action of the skin from alterations (particularly when sudden) in the temperature of the atmosphere—exposure to cold and wet—the disappearance of some slight eruption

on the skin—the healing of sores of some standing, spontaneously, or by local applications—the sudden suppression of some discharge—congestion of the liver, spleen, lungs, or kidneys—mental anxiety—active exertion immediately after a meal, and irregularities in the diet.

DIAGNOSIS OF CHRONIC GASTRITIS, FROM CANCER OF THE STOMACH—INDURATION AND NARROWING OF THE PYLORUS, AND CHRONIC DUODENITIS.

Chronic Gastritis

1. Pain, more or less constant, exists in the pit of the stomach, increased by food, some kinds more than others, with acidity, acid or watery eructations, thirst, nausea, and sometimes vomiting. Cramps or spasms are very apt to occur when the disease is severe.

2. No tumefaction.

Cancer.

(*Non-ulcerative stage.*)

1. Pain rarely severe—it may be absent—a feeling of weight alone existing, increased by taking food; there may be no acidity or acid, or watery eructations, no nausea or vomiting, unless the disease is seated at the pyloric opening. If the cancer is attended by irritation of the stomach, then symptoms of chronic gastritis will be present.

2. Tumefaction constant, increasing rapidly in the encephaloid form, but slowly in the squirr-

hoid. When the disease is seated on the posterior wall of the stomach, it is not always possible to determine whether a tumour exists, particularly in the squirrroid form.

3. The aspect of the face is rarely affected, unless the disease is severe, and the emaciation marked. When it is affected, it assumes the peculiar pallid hue which accompanies starvation; in some cases, when the passage of the bile into the duodenum is interfered with, it will assume a jaundiced tinge.

4. The appetite is generally ravenous, and the thirst severe.

5. The disease, from

3. The aspect of the face is always changed; in some cases it is of a dead white, sometimes of a yellow-earthly or brown tinge. Emaciation is not strongly marked, unless diarrhœa or vomiting exists; but there is extreme and increasing feebleness.

4. The appetite is generally bad, the thirst slight; but there is often a great feeling of heat in the epigastrium. Towards the close of life, when vomiting or diarrhœa exists, the appetite is sometimes ravenous.

5. The disease, when

some slight cause, unconnected with treatment, often disappears, and from some equally slight cause, returns. It lasts for years, and rarely ends fatally.

once established, goes on steadily increasing. It tends to a fatal termination; in the majority of cases within twelve months.

II.—*Chronic Gastritis from induration and narrowing of the pylorus.*—Chronic gastritis often induces narrowing of the pylorus. In the early stages, it is impossible to distinguish between the two, particularly when pain and tenderness are not distinctly referred to the pylorus; but as the opening of the pylorus narrows, and the passage of the food is interfered with, vomiting occurs; sometimes from one to three hours after a *solid* meal has been taken; sometimes only once in the course of twenty-four hours. It is preceded by a feeling of great distension, and by marked enlargement of the abdomen, particularly when the disease has been of some standing, from dilatation of the stomach. The matters vomited generally greatly exceed the quantity of food taken, and on standing they separate into two portions—a yeast-like one, consisting of digested food, which floats on the surface; and a watery one, forming from three-fourths to seven-eighths of the whole. On examination, however, a tumour, sometimes only a slight hardness, can be detected at the pylorus. Enlargement of the stomach invariably exists, and when the disease has been of some standing and the vomiting severe, it will occupy a con-

siderable part of the abdominal cavity—sometimes the whole—the intestines being pressed against the spine and into the pelvis.

III.—*Chronic Gastritis from chronic duodenitis.*—Chronic duodenitis is a very rare disease compared with chronic gastritis. In it there is pain and tenderness, with fulness along the margins of the cartilages of the right false ribs ; in some cases the pain is confined to a small space, in others it occupies the whole length of the intestine, the course of which can be traced by the existence of tenderness, following a letter-S-like course, down towards the right of the umbilicus. The pain is not increased or excited *immediately* after taking food, but in from half an hour to an hour. The appetite is good and food is digested rapidly. The bowels are generally irregular—the motions clay-coloured and slimy, mixed with particles or streaks of black bile ; sometimes the motions consist at times entirely of the latter. The patients will invariably have suffered for years from bilious attacks, and they will continue to be liable to them in an aggravated form, whenever the action of the bowels is interfered with, or the motions lose their healthy appearance ; relief being only obtained by the evacuation of bile.

COMPLICATIONS.

One of the most frequent complications of chronic gastritis in females, is chronic inflammation of the neck of the uterus, or disorder of the menstrual functions.

Of the thirty-nine cases where the patients were married:—in eleven the menstrual discharge was profuse and irregular; in seven it was irregular and scanty; in six regular, but scanty; in three regular; in twelve the discharge had ceased to appear. Leucorrhœa, more or less profuse, existed in all the cases where the menstrual discharge was deficient or excessive.

Of the twenty-one cases where the patients were single:—in eleven the discharge was irregular, or regular but scanty; in six it was regular, and the quantity lost natural; in two of the cases profuse; in three it had ceased. Leucorrhœa existed in about half the cases where the quantity of the discharge was defective.

A state of extreme nervousness was frequently observed, with a state of melancholy, more or less pronounced; but both occurred less as a complication than as a result of the disease. The first occurred quite as frequently in females as in males; in two of the thirty-seven cases which occurred, to the last a state of pronounced melancholy existed. In four of the cases symptoms of phthisis existed. The occurrence of this, or any other tubercular disease, particularly if the gastric symptoms are severe, always renders recovery doubtful. Disease of the heart existed in three of the cases; palpitation was frequently observed; disease of the heart was supposed in some of the cases to exist. Disease of the heart renders this disease less amenable to treatment than

it would otherwise be : the same may be said of diseases of the kidneys, spinal cord, and brain.

The occurrence of symptoms of chronic gastritis, in any organic disease, seems to render recovery, particularly if they are severe, very doubtful.

Constipation of the bowels is constantly observed ; it always renders the recovery difficult—almost impossible when the symptoms are severe. In four instances narrowing of the colon occurred ; it induced in all the cases a fatal result.

TERMINATIONS.

1st. *Of Chronic Gastritis.*—The termination was generally towards a cure, particularly in the mild form ; the same was also frequently observed in the severer form. This frequently takes place spontaneously, either from the occurrence of increased action of the skin, diseases of the skin, particularly psoriasis, ulceration of the leg, increased action of the bowels, bleeding from piles, passing from an indolent to an active life, from a full and rich diet to a plain or scanty one, the occurrence of pregnancy, or the re-establishment of the menstrual discharge.

In *very severe* cases, which have been of long standing, marked alteration in the coats of the stomach having been induced, the disease rarely ends in a complete cure.

The disease may terminate fatally by inducing exhaustion, in consequence of a state of extreme irritability of the stomach, or from diarrhœa being induced.

It sometimes induced narrowing of the pyloric opening, a result which generally entailed a fatal termination—often, however, not for some years.

In a few cases the disease terminated by inducing phthisis, which ended fatally. In a few other cases, from the introduction of irritants into the stomach, exposure to cold and wet, or privations, acute inflammation or acute softening was excited: the disease generally ended fatally.

2. *Of ulceration.*—The termination seems to be generally towards a cure. When death does ensue, it either occurs from perforation of the coats of the stomach—death arising either from the shock or from peritonitis—from hemorrhage in consequence of the ulceration penetrating a vessel. If the vessel was large, death sometimes occurred in a short time—sometimes not for several days. The loss of a small quantity of blood, when the patient has been much reduced by previous suffering, is often sufficient to induce or hasten a fatal termination. In a few cases death ensued from exhaustion, from diarrhoea, or severe and incessant vomiting.

Of 175 cases which ended fatally: death ensued in 145 of the number from perforation, in twenty-one from hemorrhage, and in nine from exhaustion.

TREATMENT OF CHRONIC GASTRITIS AND ULCERATIVE GASTRITIS.

In treating these diseases, less reliance must be placed on medicine than on diet, exercise, the due

performance of the functions of the skin, kidneys, bowels, and, in females, of those of the womb. The following is the plan I am in the habit of recommending to patients :—

1. To sponge the body with cold or tepid salt and water every morning, afterwards rubbing it well with a coarse towel or flesh brush for five minutes. If the patient is feeble, or very susceptible to cold, friction with a wet flesh brush or glove may be used for five or ten minutes.

2. To drink from half-a-pint to a pint of cold water night and morning. In some cases the water is apt to induce a feeling of sickness or coldness of the stomach. The first sensation soon ceases; the second may be obviated by taking a wineglassful for a few mornings, then gradually increasing the quantity until it amounts to a tumblerful. When the water is hard, boiled or distilled water should be drunk.

3. *Breakfast.*—Instead of tea or coffee, cocoa prepared from the nibs, chocolate, or milk and water, should be taken with the finest white bread; but, if the stomach will bear it, brown bread, as dry toast, with fresh butter, marmalade, or jam.

When there is much acidity, milk is often immediately rejected: the admixture of two or three table-spoonfuls of lime-water will generally prevent this. When it does agree, it will be found one of the best articles of diet, and, if the patient can live upon it and bread, the disease of the stomach will generally rapidly subside.

4. *Dinner*.—In most cases fish agrees much better than meats. The kinds most easy of digestion are whiting, soles, mackerel, trout, smelts, eels—the last are sometimes too oily.

The vegetables most easily digested are cauliflower and brocoli (the central parts), spinach, vegetable marrow, carrots, turnips, asparagus, Brussel-sprouts. The best puddings are sago, rice, tapioca, arrow-root, or bread, either baked or boiled. The best drinks are soda water, toast and water, barley water, or plain water.

Some persons have a great objection to a fish diet. In these cases, essence of meat or gravy may be taken with the vegetables, if meat excites pain. Soups or broths rarely agree with patients suffering from this disease, sometimes from too large a quantity being taken, sometimes from their being too highly concentrated or seasoned. If the stomach will retain plain beef or mutton tea, much benefit will be derived from a small quantity taken in the intervals between the meals, particularly if the patient is advanced in years or very feeble.

In eating or drinking, care should be taken never to eat to the extent the appetite prompts. The food should be well masticated, and if the state of the teeth interferes with this, they should be looked to. In most cases it is advisable that the patient should remain quiet for some time after dinner; in some cases half or three-quarters of an hour will be

sufficient ; in others, where the digestion is very slow, an hour or an hour and a-half is required.

5. *Tea*.—This meal should consist of the same articles as the breakfast.

6. *Supper*.—This meal should be as light as possible, and consist of a glass of water, with a baked apple or pear, a few stewed prunes and a biscuit, or a piece of brown bread and butter.

It is of the first importance in this disease that the bowels should act regularly once a day. This can only be obtained by acquiring a habit of soliciting an action from them at a certain time every day—after breakfast will be found the best time. In some cases, the bowels do not act readily for several weeks. When this is the case, they should be encouraged by injecting a pint of tepid soap and water, or thin gruel, rather than by purgatives taken by the mouth. The brown bread, the water morning and night, and the baked apples or pears, or the stewed prunes, seldom fail to regulate the bowels, unless the constipation is unusually obstinate and of some years' continuation. Exercise is a most important auxiliary in the treatment of this disease. Patients should, therefore, be advised to take a walk at least once a day, oftener if possible, care being taken not to overtax the strength. Change of air is also of the greatest service : generally a bracing air agrees best, but sometimes a warm or a relaxing one is of the most service.

Remedial Measures.—If the pain is severe, the thirst great, the tongue red and the pulse quick, three or four leeches applied once a week, or once a fortnight, will be of great service. When the symptoms are less active, counter-irritation with croton oil and acetum cantharides, or a blister, kept open with savin ointment, for several weeks should be had recourse to.

When there is no marked amount of acidity, I have found the bicarbonate of potash, with hydrocyanic acid, tincture of henbane, tincture of aconite, and mucilage, three times a-day, of most service. When the acidity is severe, calcined magnesia should be added. A dose of the mixture may be taken immediately after a meal, and when the acidity is troublesome. The spasmodic attacks are generally immediately relieved by a draught containing from ten to fifteen minims of sedative solution of opium, ten of chloric ether, and five of tincture of aconite, in camphor water.

If uterine or any other disease exists, appropriate measures must be had recourse to; for while they are allowed to continue, the gastric symptoms are rarely permanently benefited.

CHAPTER IV.

INDURATION AND NARROWING OF THE PYLORUS.—
CHRONIC INFLAMMATION OF THE WALLS OF
THE PYLORUS.

CAUSES.

I. PREDISPOSING. — *Sex and Age.* — Males seem much more predisposed than females to this disease ; for out of forty-one cases twenty-eight belonged to this sex.

With reference to the periods of life when the predisposition is most strongly marked : in males it seems to be from the twenty-fifth to the sixty-fifth year ; in females from the thirtieth to the sixtieth. The following table will show the sex and ages of the forty-one cases :—

	Males.	Females.
Before 25 years	1 (æt. 19)	—
From 25 to 30 years	3	—
" 30 to 35 "	4	2
" 35 to 40 "	4	3
" 40 to 45 "	3	3
" 45 to 50 "	3	2
" 50 to 55 "	3	—
" 55 to 60 "	3	3
" 60 to 65 "	3	—
" 65 to 70 "	1	—
	28	13

II. EXCITING.—It often occurs as a result of, or in connection with, chronic inflammation of the stomach—particularly of its pyloric extremity—from the healing of ulcers within the opening, or in its immediate vicinity, either from the contraction induced by their healing or from the deposit of the elements of inflammation which takes place around them during the process.

The habitual use of raw spirits in large quantities, particularly early in the morning, on an empty stomach, seems to be a frequent cause of the disease. In one case it was caused by drinking nitric acid; in another by potash-ley—in this case narrowing of the œsophagus also existed; and in another (a person already suffering from chronic gastritis) from the frequent use of emetics of lobelia inflata. In some cases it was caused by long-continued pressure on the stomach; in others from blows, kicks, or falls.

CHANGES FOUND AFTER DEATH.

The changes observed varied considerably. In some cases the walls of the opening were only slightly thickened; in others, they were converted into fibrous or fibro-cartilaginous tissue, forming tumours, varying in size from a small chestnut to a small orange; the opening was invariably contracted, sometimes to such an extent that it would not allow a quill or a small bougie to pass. In one instance which fell under my notice, the tumour contained

tuberculous matter; in another it was formed of calcareous matter, enclosed in a fleshy envelope.

When the tumour was large, ulceration was frequently found. In some cases the ulcer consisted of a ragged excavation, covered with a sanious discharge; in others, the ulcer occupied the opening, enlarging it, sometimes so as to enable the little finger to pass, or it penetrated the tumour in a sinuous direction, opening into the duodenum, on to the peritoneal surface; or, if adhesions had been formed with the liver, it often penetrated this organ and had induced either abscess or ulceration of it; in two instances the tumour had ulcerated on its duodenal aspect. In some of the cases the stomach was the seat of chronic inflammation, or it presented traces of having suffered from it. In a great number of the cases it was the seat of ulceration, generally in the immediate vicinity of the induration; sometimes only one ulcer existed, but in the majority of the cases there were three or four, in a few instances more, and they varied in size from a silver penny-piece to a sixpence or a shilling.

The nature of the tumour, whether cancerous or not, could not be always determined by the eye; but, by the aid of the microscope, the absence of the elements of cancer at once showed its non-malignant character. Although quite distinct from cancer, yet it sometimes co-exists with it. Dr. Bennett of Edinburgh has observed it with cancer of the lumbar

glands. I have seen it with cancer of the body of the stomach and with cancer of the liver.

Dilatation of the stomach, particularly in cases where the disease had been of some standing, was constantly found; generally it was accompanied by marked hypertrophy of the muscular coat of the stomach; but in a few instances, when the vomiting had been slight and not of frequent occurrence, this coat was atrophied.

The size of the stomach varied: in some instances it was only twice as large as usual, while in others it occupied the whole of the cavity of the abdomen. In one of the cases which fell under my notice, the great curvature was thirty-six inches in length; the lesser one eight inches, while the distance between the two curvatures was ten inches. When hypertrophy existed, the stomach when distended resembled a large bladder, the muscular fibres large, prominent and net-like; when empty it formed a large red fleshy mass, from four to six times heavier than the organ in its natural state. When atrophy existed, the coats were thin, the muscular fibres few in number and very small, and it resembled, when empty, a cellular or a fibrous mass rather than a muscular one. Its weight did not greatly exceed the stomach in its normal state.

The small intestines were sometimes of their natural size, sometimes enlarged; but the colon, particularly if the dilatation of the stomach was great from its being in more immediate contact with the

great curvature, was smooth, flattened, and reduced to a third or a fourth of its usual diameter; the cœcum and the sigmoid flexure, particularly the last, generally escaped the pressure.

In some of the cases the veins of the stomach were enlarged, and it was from them that the blood was derived (by transudation) which tinged the vomited matters and the motions of a chocolate hue during life.

The intestines were sometimes the seat of ulceration, particularly the first part of the duodenum; in some of the cases this seemed to be the source of the blood observed tinging the motions and the vomited matters.

Tubercles were sometimes observed in the lungs; sometimes the bronchial, mesenteric, and abdominal glands were enlarged, indurated, or tuberculous; the lungs and heart small; the uterus and ovaries the same.

SYMPTOMS.

The symptoms will differ somewhat, if the pylorus is alone affected, or if chronic inflammation of some other part of the stomach co-exists or has preceded it. When the disease is situated in the pylorus, pain and tenderness, confined to a space of the size of a shilling or a half-crown piece, near the margin of the eighth or ninth cartilages of the right false ribs, are first experienced; sometimes they are very severe, sometimes so slight as to escape the

notice of the patient. There is generally pyrosis, and this is often at the commencement the most troublesome symptom ; in some cases it occurs only when the stomach is empty—the first thing in the morning or after a meal, particularly dinner ; sometimes it occurs spontaneously and without pain ; sometimes it is preceded or accompanied by severe pain of a spasmodic character and retching. In some instances the fluid discharged is clear and insipid ; in others, when the irritation is severe, strongly acid ; sometimes, particularly when the pain is severe, it consists of or is mixed with mucus more or less tenacious ; sometimes, when the retching is violent, the fluid is mixed with bile.

As the disease increases, slight enlargement and hardness can be detected, and as the opening diminishes in size, vomiting of the food in a semi-digested or digested state takes place in from one to three or four hours. The vomiting does not always take place after a meal ; sometimes it occurs only after dinner, and not even then, except the meal has been very copious, the food flatulent, indigestible, or if it has been followed immediately by exertion ; but in most of the cases a gradual accumulation of food takes place in the stomach, until it reaches a certain point ; then vomiting occurs spontaneously, or the patient is compelled to induce it by introducing a feather or the finger into the throat, to get rid of the weight and fulness at the pit of the stomach, and the difficulty of breathing experienced, particularly on

exertion. In some cases the vomiting occurs once in twenty-four hours; in others, once in two, three, or four days: it is liable, however, to vary according to the nature and quantity of the food taken. The vomited matters resemble yeast both in colour and consistence, and greatly exceeds in quantity the food taken, and is highly acid both to the taste and to test paper, from the presence of a large quantity of gastric juice. On standing, the matter separates into two portions—a superficial one consisting of food digested and semi-digested, and a deep one consisting of watery fluid more or less clear; the last forms from three-fourths to seven-eighths of the whole. This watery fluid indicates that great irritation exists in the vicinity of the pylorus.

The vomiting is often peculiar. In hypertrophy of the muscular coats it often occurs spontaneously and suddenly, particularly when the patients are walking or exerting themselves, the contents of the stomach being driven to a great distance, the organ often emptying itself by a few efforts. In atrophy of the coats, the vomiting consists less in an expulsive effort than in a regurgitative one, from over-distension. In the last case the matter ejected consists of food in a digested condition, the watery fluid being absent, or but small in quantity.

In the last stage of the disease, from the presence of blood, in consequence of ulceration of the tumour, stomach, first part of the duodenum, or liver, or from transudation, the vomited matters and the motions

become frequently of a chocolate or brown hue. Sometimes the blood is discharged as soon as it is poured out; sometimes a fluid resembling coffee or soot mixed with water (blood altered by digestion) is discharged. From the occurrence of ulceration in the tumour, the opening of the pylorus is sometimes enlarged; in these cases the vomiting diminishes, or even ceases, and food is passed from the bowels in an undigested state: diarrhœa is generally present. When the vomiting is severe, the feebleness becomes extreme; the emaciation marked and increasing; the conjunctivæ of the eyes brilliant; the skin cold and pale, sometimes tinged with yellow, which in some cases is constant; in others, it occurs only before the vomiting takes place, ceasing as soon as the stomach is emptied. In the first, the tinge generally depends upon some obstruction of a permanent nature to the passage of the bile into the duodenum, arising either from disease of the duodenum, or from alteration of its position; in the second, the pressure of the enlarged stomach is the cause. The pulse is feeble; the tongue white, flabby, or coated; the papillæ, particularly those on the posterior part of the organ, prominent and red; the breath acid or fœtid; frequent heartburn and acid and watery eructations exist, sometimes with involuntary rejections of the food; the appetite is ravenous; the thirst intense; the bowels confined; a scanty, but sometimes a copious motion, is passed once in four, six, ten, or fourteen days. The frequency and size of the

motions will depend on the amount of food which passes into the intestines. The motions are generally of a natural colour, but sometimes they are mixed with mucus; if ulceration exists, blood in a pure state, or altered, from the action of the gastric juice tinging them of a brown or black hue. Diarrhœa is very apt to occur. The urine is scanty, and more or less high-coloured; sometimes it deposits, on cooling, a little pink sediment. The feet and legs have often a tendency to swell, and fluid sometimes accumulates in the cavity of the abdomen. The temper is generally very irritable; there is great timidity and a constant dread of some impending misfortune; the sleep is troubled with frightful dreams; and, even awake, fanciful objects and persons are seen, or noises heard; the memory generally fails, and the power of recalling circumstances, both of recent and long occurrence, is lost, or it is exerted with difficulty. From the distension of the stomach (before the vomiting sets in), the abdomen will be found to become enlarged and tense, but after it has taken place, flattened, and the walls relaxed, and, on pressure with the hand, moving it at the same time, the splashing of fluid can be heard. The size of the stomach can be determined by tracing the extent of this splashing sound, or by placing the patient successively in the erect position, then on his sides, so as to allow the fluid contained in the organ to gravitate, and using percussion.

By examining the region of the pylorus when the

stomach is empty, an enlargement can be generally discovered, varying in size from a filbert to a walnut or a small orange: it is generally free from pain, unless ulceration or chronic peritonitis exists. The enlarged organ has been known to fall to the lowest part of the abdomen, either suddenly or gradually, from its weight becoming too great for the lesser omentum.

When disease of the pylorus occurs in connection with or subsequent to chronic inflammation of the stomach, the symptoms are not so accurately defined as when the pylorus is alone affected. At the onset the symptoms are those of chronic gastritis; but as the narrowing of the pylorus becomes more pronounced and the obstruction to the passage of the food from the stomach into the intestines great, vomiting of food in a digested state takes place, mixed with watery fluid, accompanied by enlargement of the stomach.

DIAGNOSIS OF CHRONIC INFLAMMATION OF PYLORUS,
FROM CANCER OF THE PYLORUS, AND NARROWING
OF THE DUODENUM.

It is of the utmost importance that a correct diagnosis should be made as to the real nature of the disease of the pylorus, for chronic inflammation does not always prove fatal if due care is observed; neither is it a disease (except in very few instances), likely to be transmitted to the children. Cancer, on

the other hand, proves invariably fatal—the most careful measures rarely doing more than arresting it for a time : it is also very apt to be transmitted.

*Chronic inflammation
of the Pylorus.*

1. It is frequently preceded by symptoms of chronic gastritis.

2. Vomiting is constant; the food brought up is in a digested state and mixed with a large quantity of clear fluid. It is often benefited considerably and for a long time by a strict diet.

3. The tumour is invariably small, seldom exceeding a walnut or a small orange in size. Its growth is slow—months or even years elapsing without its undergoing any marked

Cancer of the Pylorus.

1. In some cases, particularly of the squirrroid form, there are occasionally symptoms of chronic gastritis.

2. Vomiting is frequent, as soon as the obstruction to the passage of the food into the duodenum becomes pronounced; it is sometimes mixed with clear fluid, or with mucus. It is seldom benefited, at least for any length of time, by diet or treatment.

3. The tumour is generally large, particularly when the disease is of the encephaloid form. Its growth is rapid, and in a few months it attains a large size, or spreads; it never decreases or re-

alteration; it may, if the symptoms improve, diminish somewhat. mains stationary for any length of time.

4. Dilatation of the stomach invariably ensues, and will be more or less marked, according to the time the disease has lasted, and the amount of obstruction which exists at the pylorus. 4. Dilatation of the stomach rarely occurs, at least to any extent, from the rapidity with which the disease passes to a fatal termination.

5. The aspect of the patient is that of a person starving; emaciation and debility exists, often in a marked degree, but they are usually slow in their progress, and if the vomiting lessens they are rapidly recovered from. In some cases the skin is of a yellow tinge, sometimes constantly, but generally it occurs just before the vomiting sets in,—it is essentially the yellow tinge of jaundice. There is severe thirst and the appetite is ravenous. 5. The aspect is earthy, dirty yellow, or dirty white: emaciation, sometimes though not always strongly marked, but the debility is extreme and increasing; neither are ever recovered from to any extent. The appetite is generally bad, thirst is not strongly marked, although there is frequently a great desire for cold drinks.

6. Ulceration some- 6. Ulceration almost

times takes place, either in the induration or in the stomach, and blood is poured out; the vomited matters and the motions assuming a brown hue; or coffee or soot-like fluid is discharged.

invariably ensues; the vomited matters and the motions are discoloured from the presence of blood, more or less altered, or sanious fluid: diarrhœa frequently exists, sanious fluid being often passed in large quantities. *Cancer masses or cells, by careful examination of the sanious fluid, or of the matters vomited when the stomach is empty, can generally be discovered.*

7. The disease, unless a stimulating treatment is employed, or spirits and an irritating diet indulged in, is generally of long duration. By strict diet life may be prolonged for years.

7. The disease is of short duration: in the majority of cases, death ensues within twelve or fifteen months, and the most judicious measures seldom succeed in arresting its progress for any length of time.

Narrowing of the Duodenum.—This is a very rare affection. Prior to the occurrence of vomiting, it is preceded by symptoms of chronic inflammation of the duodenum (*vide* Chronic Duodenitis). The vomiting, as in the cases where narrowing of the pylorus

exists, occurs more or less periodically, and consists of food in a digested condition mixed with a large quantity of watery fluid, and the stomach becomes dilated. Narrowing of the duodenum above the point where the common duct opens into it cannot be distinguished from obstruction at the pylorus, but in narrowing below where the duct opens, the vomited matters have a brownish hue, and a slight faecal odour.

DURATION AND TERMINATIONS.

I. *Duration*.—Of twenty-two fatal cases where the duration of the disease was noted: in nine it ensued within twelve months after the symptoms became fully developed; in three within two years; in four within three years; in the remaining six cases death ensued at the end of six, nine, ten, thirteen, and fourteen years.

In the cases which proved fatal within twelve months: in one, it occurred in three months after nitric acid had been drunk; in a second, from a blow on the epigastrium; in a third, the disease had existed some months, when from a fall the symptoms became immediately worse, and death ensued in a short time; in a fourth, from the employment of a stimulating plan of treatment; in a fifth, where it ensued from drinking potash-ley, death was accelerated by stimulants; in the remaining four cases, the persons were addicted to the use of spirits, and they continued to use them more or less freely up to the time

of death. In all these cases the disease was of a more or less acute character, and complicated with inflammation, or ulceration of the stomach.

II. *Termination.* — Of thirty-seven cases which proved fatal: in one case it ensued from profuse and sudden hemorrhage in consequence of an ulcer penetrating a large bloodvessel; in twenty-six cases it was produced by gradual exhaustion, from inanition (rare), from the frequent loss of small quantities of blood from the bowels, from ulceration of the duodenum (most frequent) or of some other part of the intestines. From the stomach (in a few instances from the first part of the duodenum) by vomiting and by stool, either from ulceration of it or of the tumour; sometimes from the liver, from the ulcer penetrating into it; sometimes from transudation, particularly when the veins of the stomach were much dilated: in five cases from peritonitis, in consequence of perforation of the stomach, some of the contents of the organ escaping into the peritoneal cavity; in one case from rupture of the stomach in consequence of a very copious meal of indigestible food, after a strict diet: in two cases from dysentery, in one, from ulceration of the cæcum and first part of the colon, in the other from inflammation and ulceration of the transverse portion: in three cases from diarrhœa excited by the fluid poured out from the ulcerated tumour, and by food which found its way into the intestines in consequence of the opening of the pylorus enlarging from ulceration.

TREATMENT.

In the early stages of this disease, the treatment laid down for chronic gastritis should be employed; in the later, when the pyloric opening becomes so narrowed as not to admit of the passage of sufficient food to nourish the body, the diet must be confined to fluids, such as milk, if it agrees, and mutton, beef, chicken or veal broth; and injections of strong beef or mutton tea, with or without wine, should be thrown up three or four times in the course of the twenty-four hours. In cases of extreme debility, tepid foot or general baths, containing the essence of meat, or olive oil, diffused in the water. Great benefit will follow the taking of olive and cod-liver oils, if the stomach will retain them, three or four times in the course of the twenty-four hours.

The patient should inhabit a warm room; his clothing should be warm, his abdomen kept well supported by an elastic bandage, and he should use as little muscular and mental exertion as possible.

In extreme cases of this disease, the aim of the practitioner must be to prolong life as long as possible—for a cure can scarcely be hoped for. In the absence of great irritation of the stomach, or disease of some other organ, cases which often appear in the last stage of emaciation rapidly recover, and go on for years, under the judicious administration of nourishment.

CHAPTER V.

PERFORATION OF THE STOMACH.

CAUSES.

1. PREDISPOSING.—*Sex and age.*—Females are more predisposed than males to this disease; for, out of 150 cases of this lesion, 104, or two-thirds, belonged to this sex.

With reference to the periods of life when the predisposition is most strongly marked: in males it seems to be from fifteen up to forty (most pronounced from twenty to thirty-five, as one-half of the cases occurred in patients between these ages), and from fifty to sixty; in females it seems to be before fifteen and up to thirty (most marked, however, from fifteen to twenty-five, as fifty-five of the 104 cases occurred between these ages), and from fifty to sixty.

The following table will show the ages and sex of the 150 cases:—

	Females.	Males.
Before 15 years	10	3 or 4
From 15 to 20 years	32	4
" 20 " 25 "	23	6
" 25 " 30 "	14	6
" 30 " 35 "	2	12
" 35 " 40 "	2	4
" 40 " 45 "	6	2
" 45 " 50 "	12	1
" 50 " 60 "	3	7
	104	46

Whatever predisposes to acute or chronic inflammation, acute or chronic ulceration, or local softening, renders patients liable to this lesion.

II. EXCITING.—In chronic ulceration, when the mucous and the muscular coats have been destroyed, leaving the peritoneal one intact or thinned, sometimes destroyed, adhesions in these cases existing between the edges of the ulcer and an adjacent organ, and these of recent formation or very thin, perforation has ensued from the peritoneal membrane or the adhesions giving way, from distension of the stomach, caused by eating a larger or more flatulent or indigestible meal than usual; sometimes after a very frugal one, particularly if it has been followed immediately by active exertion or exercise. In some cases it has occurred while the patient has been drawing on a pair of tight boots, ascending a long flight of stairs or a hill, coughing, sneezing, laughing, stooping, reaching an object placed high above him, lifting a heavy weight, or straining at stool.

But in many cases there was no exciting cause, the perforation ensuing solely from the extension of the ulceration; in these cases it often occurred during sleep, or while perfectly quiet. In these cases, as well as in the former, the occurrence of the perforation was often preceded by determination of blood to the stomach, in consequence of congestion of the liver, spleen, or lungs; retardation or sudden suppression of the menstrual discharge; checking of the bleeding from piles; healing of ulcers on the

legs; or the disappearance of chronic diseases of the skin, particularly psoriasis, either spontaneously or by external applications; or great accumulation of fæces in the colon. In some cases the perforation was preceded by symptoms of acute gastritis, more or less marked, excited by a full meal, a debauch, or the sudden suppression of the menstrual discharge from exposure to cold and wet; in others, by severe gastrodynia. In some of the cases the patients had never complained of disorder of the stomach; in others they had, often severely, though perhaps only for a short time, and the perforation had ensued from acute local softening, occurring either primarily, or on chronic ulceration.

CHANGES OBSERVED AFTER DEATH.

The changes met with in the stomach may be arranged into two classes: 1st, those observed when the perforation ensued from the gradual destruction of the coats from chronic ulceration; 2nd, those met with when it was induced by acute local softening, or from the occurrence of acute symptoms in chronic ulceration.

In the *first class*, the perforation had sometimes destroyed all the coats in regular succession; but the opening on the peritoneal surface was seldom as broad as the one on the mucous; the edges of the perforation were more or less hardened, and the hardening varied in extent from half a line to one or two inches. Sometimes the perforation was seated

in the centre of a cicatrix or an ulcer ; sometimes a small aperture existed in the centre of the peritoneum. In a few instances this membrane had become sacculated, and formed a pouch, varying in length from a few lines to half-an-inch or an inch, capable of admitting the extremity of the little finger or the thumb, and the perforation existed at its extremity ; more frequently, however, this membrane had been removed by ulceration, or small shreds of it were found adhering to the edges of the perforation. Sometimes perforation had ensued, in consequence of the adhesions which had formed between the edges of the ulcers and some adjacent organ giving way. The separation was sometimes complete, particularly when the adhesions were recent or very thin, and formed with organs not in immediate contact with the stomach ; but more frequently it was incomplete, one side having given way, either from the adhesions not being fully organized or thin, or from their having been undermined or destroyed by the extension of the ulceration, and rendered unable to bear the distension which would ensue after a full meal, or the strain from over-exertion or reaching.

In the *second class*, the edges of the perforation were sometimes found quite smooth and clean ; sometimes dark brown or black, and more or less emphysematous. The mucous membrane in some cases was unaltered ; in others it was deeply injected, sometimes softened, thinned, or detached ; the muscular coat being occasionally affected, but in a much less

degree. In some instances the softening was confined to the edges of the perforation, and for a short distance around it; while in others it existed in different parts of the stomach, in patches varying in size from a sixpence to a five-shilling piece, and generally confined to the mucous membrane.

The changes found within the *abdominal cavity* will depend upon the time the patient lives after perforation has taken place. If death has ensued immediately or within a short time, marked congestion of that part of the peritoneum with which the effused matters have come in contact, is found.

When death has not ensued until twelve, eighteen, or twenty-four hours after perforation has taken place, the cavity is found to contain a large quantity of gas, and from one to three quarts of serum, generally tinged with the medicines given during life, and containing particles of food. Both the gas and fluid smell generally very acrid, and the last gives an acid reaction to test paper. The intestines are generally distended with gas, and adherent to each other; their peritoneal membrane and that covering the walls of the abdomen, deeply injected.

When death has not ensued until thirty hours after perforation has taken place (rarely before, unless the inflammation has been very intense), the serum, from the admixture of purulent matter, assumes a sero-purulent appearance, and the intestines are found covered with flakes of lymph or pus; sometimes the latter will be diffused over the intestines, or collected,

from gravitation, in considerable quantities in the pelvis and near the spinal column.

When a small quantity of food has been effused, or a considerable quantity if suddenly, no additions being made to it, or any circumstance occurring to extend it over the abdomen, it rapidly becomes bound in by adhesions, and collections of sero-purulent matter, but more generally of pus alone, are found. I believe only one instance has been recorded where the cavity contained serum. The patient, a middle-aged man, did not die until more than a fortnight after the perforation had taken place.

The size of these collections varied; in some cases they did not exceed a large orange; in others they were as large as a child's or even a man's head. Sometimes their walls were formed by the different organs joined together by false membranes, but in most of the cases distinct sacs were found.

When these collections are small, death seems to ensue but rarely. They are in these cases generally found communicating with the stomach; sometimes containing putrescent food, or a little mucous fluid. When situated on the anterior wall of the stomach, they sometimes, either by ulceration or by the formation of abscesses in the walls of the abdomen, communicate with the surface of the abdomen. In this way fistulous communications between the surface of the abdomen and the stomach are often formed.

When the collections form between the upper surface of the liver and the diaphragm, the pus generally

makes its way through the diaphragm into the cavity of the chest; sometimes into the lungs, if they adhere to the diaphragm. When they are situated near the umbilicus, the pus sometimes makes its way into the colon or the small intestines.

The lungs are often found inflamed, the pleura the same, and containing a considerable quantity of serum; the pericardium is also occasionally inflamed. There is generally a considerable quantity of serum in the last.

The perforation does not always open into the peritoneal cavity. In a few instances, when the ulcers have been seated along the great curvature of the stomach, adhesions have formed—sometimes of small, sometimes of considerable extent—with the transverse arch of the colon, and the walls of the last have become perforated, and a direct communication formed between the two cavities. In some instances sacs of variable size existed between the two organs. In other instances, when the stomach has formed adhesions with the diaphragm, the perforation has opened into the cavity of the chest.

SYMPTOMS.

Perforation of the stomach in one class of cases is preceded by no symptoms referable to the stomach, and this seems to be particularly the case when the lesion is seated on or in the immediate vicinity of the lesser curvature, and nearer the cardiac than the pyloric opening; in a second class, the symptoms

referred to the stomach are slight, and consist of pain of a pricking or boring character, sometimes with attacks of spasms, particularly just before the menstrual period, or if the menstrual discharge is checked; in a third class, there is severe chronic gastric derangement, often of some duration, and more or less constant; in a fourth class of cases, the symptoms referred to the stomach are of an acute character, and these may be either developed without any previous symptoms of gastric pain or disturbance, or they may occur on the chronic symptoms, from exposure to cold and wet, sudden suppression or retardation of the menstrual discharge, a debauch, or a full meal of indigestible food. These symptoms generally consist of great weight in the epigastrium, difficult breathing, hot skin, small quick pulse, nausea, and vomiting, and they may continue for six, nine, twelve, eighteen, twenty-four, thirty-six, or forty-eight hours, according to the previous state of the walls of the stomach. If they have been much destroyed by previous ulceration, a very short time may only elapse before perforation ensues.

The symptoms which follow perforation are those of peritonitis, and this may be either *general* or *partial*, giving rise, in the latter case, to peritoneal abscess. They may be divided into three stages: first, that of *depression or collapse*; secondly, *that of inflammation*; and thirdly, that of *hectic*, sometimes observed when peritoneal abscesses form.

The perforation does not always open into the

cavity of the peritoneum. In a few instances, when the great curvature of the stomach was the point where the ulcers existed, perforation of the colon ensued; sometimes the diaphragm has been perforated.

I. OF GENERAL INFLAMMATION.—*First, the stage of depression or collapse.*—In a few cases its occurrence is preceded by a distinct though brief attack of cold shivers. The patient usually utters a loud cry of pain, exclaiming that something has given way in the upper part of the abdomen, and that boiling water or melted lead is dropping, if the opening is small, flowing if it is large, down among the bowels, and spreading over the abdomen, and either becomes insensible for a short time, or sinks into a state of semi-insensibility: the last invariably succeeds the first. In it the face and skin are deadly pale and cold, the features pinched, the pulse depressed, and either very quick or very slow; and low cries or groans are incessantly uttered, which the slightest attempt at motion increases. Vomiting frequently exists: at first a little semi-digested food or fluid is brought up, but later, efforts to vomit only are made, the patient being irresistibly driven to make them, although every effort, from its causing more of the contents of the stomach to escape into the peritoneal cavity, and diffusing those already effused, adds greatly to the sufferings. The walls of the abdomen are greatly retracted, and the muscles hard. Pressure generally gives relief in this stage; and it is not uncommon to find the patients on their abdomens,

with their hands pressed deeply into the abdomen ; but more frequently they are found on their backs, with their knees drawn up, and their hands pressed deeply into the pit of the stomach.

Death very rarely ensues in this stage, unless the strength of the patient has been greatly reduced by long-continued ill-health, or when the perforation has been so large as to allow of the escape of a large quantity of the contents of the stomach at one time, or when a second effusion has taken place in a day or two after the first. In the last case death may ensue, although the quantity effused, both the first and second time may have been but small.

1. An aged female* died suddenly on the occurrence of perforation, after having suffered for some time from disease of the stomach ; not, however, of a very severe character.

2. A female,† while attempting to rise into a sitting position in bed, fell back, and expired immediately. After death, perforation of the stomach was found.

3. A gentleman,‡ from thirty-five to forty years of age, who had suffered severely from disease of the stomach, was taken with perforation, and died in an hour and a-half.

4. A single female, aged twenty-three, who had

* Parkin : London Medical Repository, 1831.

† Mayo : Outlines of Pathology. Communicated by Mr. North.

‡ Dr. Adams : Dublin Med. Journal, 1851.

suffered severely for seven or eight years from symptoms of chronic gastritis, was taken with severe spasm of the stomach, just as the menstrual discharge was about to appear, which continued for about an hour, when she uttered a loud shriek, became insensible, and died in two hours. The perforation in this case was nearly as large as a two-shilling piece.

5. A female, between fifty and sixty years of age, entered the Hotel Dieu, under Blandin, for the purpose of having a small tumour removed from her arm. She was weak and feeble, but this was attributed to the tumour, which was very painful. While on the *garde robe*, she was suddenly seized with severe pain in the abdomen, became collapsed, and died in an hour.

6. A monthly nurse* was seized one evening with severe pain in the pit of the stomach. She was relieved by warm fomentations and was able to attend to her duties. The following evening she was suddenly taken with pains and sickness, became faint, and died in a few minutes. A small perforation was found in the stomach, and some patches of recent coagulated lymph on the bowels.

I have seen one case where death ensued from perforation, without any escape of food into the cavity of the peritoneum.

A young man, about twenty-five years of age, of

* Watson: On Homicide.

delicate constitution, lame from having received an injury of the hip when an infant, was taken on the 11th of March, 1856, the day after he had eaten a very hearty dinner, with pain in the left hypochondrium, and frequent sickness. He was seen by Mr. Morgan, of Westminster, who ordered him some effervescing medicine, with hydrocyanic acid.

12th. He continued in the same state. At eleven p.m., he was found by his mother in a state of great prostration; the pain in the side had greatly increased, and the vomiting was more distressing. By the exhibition of some brandy he recovered somewhat from the prostration. The sickness continued, only when the quantity of fluid given exceeded a dessert-spoonful.

When seen at four p.m. on the 13th, his face was extremely pallid, but it did not bear the expression of intense agony which generally marks the existence of perforation; the radial artery had ceased to beat; the action of the heart was feeble and tumultuous; the voice feeble and indistinct; the abdomen flattened, but not retracted, and free from tenderness. The epigastrium was drawn in, and pain and tenderness existed, most pronounced on its left side, it extended up over the cartilages of the false ribs; the last, seemed, however, to be in some measure due to a large mustard poultice which had been applied. He died at half-past five.

The abdomen was not greatly distended; a little inodorous gas escaped when the cavity was cut into.

The intestines were largely distended with gas ; they were otherwise quite empty, and the descending colon was about half the size of the ascending and transverse ; the stomach quite empty, and twice its usual size ; on its anterior wall, about two inches from the cardia, and the same distance from the great curvature, there was a perforation, somewhat larger in diameter than a shilling. The mucous membrane was quite dry, and deeply injected ; in the immediate vicinity of the perforation it could be easily raised : the same was observed in two or three other places, to the extent of a two-shilling piece.

Second, or Inflammatory Stage.—The period when this stage sets in varies. In some cases it commences immediately after the fainting induced by the first shock of pain excited by the escape of the food from the stomach ; in others the two stages are combined throughout, the patients remaining in a state of collapse—the pulse being either very slow and feeble, or rapid and almost imperceptible—the skin cold, or its heat but little raised ; but yet the tenderness and distension of the abdomen are extreme and increasing ; the thirst is often intense, and the patients utter low cries or groans incessantly, from the severity of the pain. These cases generally end fatally within eighteen or twenty-four hours.

In a third class of cases this stage occurs without any previous fainting or collapse, at least of a marked character. In these cases the perforation is generally very small, or some obstruction exists, so that

the food escapes very slowly, and is either slowly diffused over the abdomen, or becomes bound in by adhesions.

The development of this stage is often hastened by the exhibition of stimulants, under the idea that the attack is spasmodic. This opinion is frequently favoured by the patient having been subject to spasmodic attacks, which hot spirits and water have relieved.

The characteristic features of this stage are hot dry skin, quick small pulse, generally ranging from 110 to 120 or 140; but sometimes it is very slow, and so feeble as to be scarcely perceptible. The thirst is intense, the craving for cold water to allay the burning heat in the stomach and abdomen incessant: the tongue is generally dry, and, if life is prolonged beyond the second day, both it and the teeth become coated with dark fur; the face is anxious, the features contracted, and the eyes sunken. Sometimes however, the face looks œdematous, but under both circumstances there is an expression of intense agony. The abdomen is very large and tender: it often in a few hours becomes as large as a woman's eight or nine months pregnant. This rapid enlargement is due in part to the matters which have escaped from the stomach, to the serum which the peritoneum has poured out, and to air which has found its way through the perforation from the stomach. On percussion, the enlarged abdomen will yield a dull sound at its sides, and a tympanitic one on its

superior aspect. Sometimes, by placing the ear close to the epigastrium, and gently pressing the superior part of the abdomen, the air may be heard, if the position of the perforation admits of its escape, rushing with a blowing sound into the stomach. The breathing is extremely difficult—from the space occupied by the lungs being encroached upon by the fluid and air in the cavity of the abdomen, by the extreme pain which any attempt to take a full inspiration excites, and by the feeling of intense constriction which occupies the abdomen. The pain is of a burning character; sometimes it continues throughout unmitigated, but it not unfrequently declines or even ceases, sometimes after the first access, or when the effused matters cease to extend; but the slightest movement of the body, coughing, retching, or drawing a deep breath, will cause it to return, and if it was not general before, soon renders it liable to become so. When the inflammation is general, the bladder, uterus and rectum, often become affected. The implication of the first is marked by an incessant desire to pass water—a few drops only escaping: the bladder will be found, on the introduction of a catheter, empty. The implication of the uterus will be marked by bearing-down and by pains not unlike those present in the first stage of labour; the implication of the rectum will be shown by tenesmus.

The bladder is the organ most frequently affected; the uterus and rectum being rarely implicated with-

out its being also affected. They are most unfavourable symptoms, and are certain indications of a fatal termination. Retching (particularly when severe) also indicates a fatal and rapid termination, from its causing more of the contents of the stomach to escape, and diffusing the matters already poured out.

When the inflammation *is general*, death rarely ensues until twelve hours have elapsed: in the majority of cases, not for eighteen, twenty-four, thirty, or thirty-six hours; in a few instances not for forty-eight hours; and in still fewer, not for seventy-two. It takes place in some cases slowly, the pulse gradually becoming more feeble, irregular, and imperceptible; the skin cold and covered with clammy perspiration; the features more pinched or more flattened, and the eyes and mouth surrounded by livid circles. The mind in these cases generally remains intact; but sometimes a state of apathy or semi-coma ensues, accompanied or followed by difficult respiration, and later by mucous râle.

Sometimes, however, death takes place suddenly—often while the patient is attempting to sit up, or endeavouring to evacuate the contents of the bladder or the rectum.

Patients are very apt to sink suddenly when they have been suffering for some time, on the sudden accession of pain, often when it is of no great intensity. The exhibition of stimulants, emetics, or attempts to induce sickness by irritating the throat, has often been followed by a fatal result, in many instances immediately.

II. OF PARTIAL INFLAMMATION. — PERITONEAL ABSCESS.—When the matters effused are small in quantity, no additions being made to them, and no motion of the body, or any other cause, such as retching, coughing, &c., occurring to extend them, they soon become bound in by adhesions formed between the different organs, the walls of the abdomen, and the great or lesser omentum, and give rise to peritoneal abscesses.

In these cases the symptoms will differ somewhat, according to the point where the perforation has taken place. If it is seated at or near the lesser curvature, the pain and tension will be seated at the upper part of the abdomen, extending up the sides of the chest and to the back. Sometimes, from the effused matters passing up between the liver and diaphragm, symptoms not unlike those of acute pleuritis will be induced: there will be deep-seated pain in the lower part of the chest, great difficulty of breathing, dulness on percussion, and absence of the respiratory sounds, from the lungs being pushed upwards. Sometimes there is metallic tinkling or a splashing sound, and, if the opening between the stomach and the cavity is unclosed, a blowing sound may be heard on coughing, or when a deep inspiration is made.

The sudden occurrence of pain of a burning character—its being accompanied by more or less faintness and depression the great tenderness of the hypochondriac and epigastric regions—the marked distension of the latter, both to the eye and to the

touch, particularly if the effusion has been considerable—the absence of any previous chest symptoms—will generally (if the history of the case is investigated) show the nature of the lesion. Pleuritis and pneumonia often set in in the course of these cases; even pericarditis may occur.

In some cases the matter from the peritoneal abscess makes its way through the diaphragm (particularly when seated near it) into the cavity of the chest; in others, into the lungs, when adhesions exist between them and the diaphragm, exciting abscesses in them, or opening into a bronchial tube: in others, again, the matter makes its way into the transverse arch of the colon, the small intestines, the stomach, or on to the surface of the abdomen.

These cases rarely prove fatal immediately, frequently not for weeks or months. If the abscesses are small, and no secondary implications ensue, recovery may even take place.

But few cases of perforation of the stomach, followed by the occurrence of peritoneal abscess, have been recorded; only two instances have fallen under my own observation.

1. *Chronic Gastritis—Perforation and formation of peritoneal abscess—Discharge of pus from bowels—Death at end of seven weeks from hemorrhage.*

A milliner, aged twenty-one, came under my notice early on the morning of the 10th of April, 1855, suffering from pain, tenderness, and distension of the

upper part of the abdomen, and difficulty of breathing. Her pulse was quick, but without much power; skin rather hot, tongue white, thirst severe, bowels confined; but she had neither nausea nor vomiting. The pain had commenced the evening before, suddenly while she was moving a table: it caused her to utter several screams, but it did not render her insensible. She went to bed immediately, and passed a sleepless night; but the pain, after the first access, has not been very severe. She has taken nothing, since the pain commenced, but water.

Her health has not been good since she was sixteen, when the menstrual discharge first appeared; it has never been regular or sufficient in quantity, and profuse leucorrhœa has existed nearly throughout. Her digestion has been difficult for more than four years, and of late the difficulty has increased, and it has been accompanied by a feeling of constant weight in the epigastrium, and soreness, which both food and liquids have increased; frequent vomiting has also existed, nearly everything taken being immediately rejected, mixed with a large quantity of acid fluid. By the free use of opium, combined with calomel, the application of leeches, followed by blisters, and a very spare diet, she so far recovered as to be able to sit up at the end of fourteen days. From this time she ceased to make any progress, night fever became more and more marked, and she emaciated considerably. The tumefaction of the epigastrium became more prominent, and the ten-

derness continued. In the erect position a tympanitic sound on percussion was heard in this part; in the horizontal one, a dull one; and on coughing, a splashing sound was produced. Her bowels acted once in three days without medicine.

On the morning of the 17th of May, she was taken suddenly with faintness, and vomited up some brown-coloured fluid, and in a short time she passed a large quantity of purulent matter from the bowels. The tumefaction of the epigastrium diminished, but the tenderness continued; on percussion, it yielded a tympanitic sound; the splashing sound on coughing had ceased. For several days death seemed inevitable; but, by the use of wine and beef-tea, she gradually rallied. Purulent matter in considerable quantities continued to be passed from the bowels.

On the 24th of May, blood was observed to be mixed with the pus; it continued on the 25th, 26th, and 27th, and weakened her very much. She expired rather suddenly on the 28th.

On opening the abdomen a cavity was found, containing about half-a-pint of blood mixed with pus, which was found to have come from an ulcer on the under-side of the liver. This cavity was formed, in part, by the under-surface of the liver, the anterior wall of the stomach, the abdominal wall, and the transverse arch of the colon. There was an opening between the cavity and the colon, and it was through this that the pus had been discharged. The stomach was very small; near the centre of its anterior wall, two

inches from the lesser curvature, there was a recent cicatrix ; on the posterior one, there was a patch of thickening three and a-half inches long, and two inches broad. The stomach at this point was irregular.

2. *Chronic Gastritis—Perforation, followed by peritoneal abscess, which made its way to the surface—Cure.*

A female, aged forty, entered La Charité, suffering from marked tumefaction of the left side towards the margins of the left false ribs. She had hectic ; her pulse was quick and small, skin rather hot, thirst marked, emaciation considerable and increasing.

She stated that she had suffered for some time from difficult digestion, and had been very liable to attacks of spasms. Eight weeks before her admission, she had had a severer attack of spasms than usual, which left considerable pain in the stomach, accompanied by some difficulty in taking a full breath. She continued in this state for several days, the pain and difficulty in breathing neither increasing nor diminishing. One night, while getting out of bed, the pain suddenly increased in severity, and she fainted for several minutes. The pain continued, and she had great tenderness and fever. She was bled largely, both from the arm and from the seat of pain, and kept on a very low diet, which had the effect of relieving the pain considerably ; but the tenderness continued, and there was marked disten-

sion of the left side of the epigastrium, which has since gradually made its way towards the lower margin of the ribs, and become more prominent.

The swelling was opened, and from one and a-half to two pints of matter evacuated. She recovered.

3. *Chronic Gastritis—Perforation and formation of peritoneal abscess—Pneumonia—Death, at end of twenty-nine days, from exhaustion.**

A female, aged nineteen, a worker in a flax-mill, seen January 17, 1843. She had suffered for five years from disease of the stomach; which, during the last two months, had been much worse. She vomited after meals, acid, and occasionally bitter matters, accompanied by pains, generally of a burning nature, of variable duration, occurring most frequently in the morning, and generally confined to the epigastrium; but sometimes it moved to the right side, where it resembled "a stitch." Soda and pressure gave relief.

The bowels were generally confined, the menstrual discharge regular; but, until nine months back, it had been irregular for fifteen months. She was subject to palpitation of the heart.

The occasional application of leeches, and the exhibition of alkaline tonics, gave only partial relief. The menstrual discharge became again irregular—sometimes it was absent for months.

* Dr. Malcolm: Medical Times, 1845-6.

Towards the end of 1844, and during the beginning of 1845, the gastric symptoms disappeared ; but they were replaced by griping pains in the abdomen, most marked on the left side of the epigastrium, where tenderness also existed. She had slight cough and expectoration. Bleeding from the arm, and a mixture containing henbane, removed the griping pains ; but the gastric symptoms immediately returned.

On the 17th of May, after suffering for twelve hours from pains in the arms, feet and legs, she was suddenly taken with severe pain in the left hypochondriac and lumbar regions.

On the 19th, she entered the hospital. The pain was increased by the slightest motion, pulse quick and small, skin hot, face anxious. She was bled freely, and calomel given. During the first eight days, her bowels were much disturbed. She had much pain in the left shoulder throughout.

On the twelfth day of the attack, her pulse fell to ninety-five, then rose suddenly ; but on the twentieth day it again fell. It vacillated occasionally.

On the fourteenth day, frequent vomiting and distressing cough set in. The pain was better for some days, but it never ceased. Some alteration in the breath sound was detected at the base of the left lung.

On the fifteenth day, slight dulness was discovered, the respiration was very quick—the pulse 140—trembling of the body—gnashing of the teeth, with a

tendency to insensibility. By the application of heat, and the administration of stimulants, she recovered. She then vomited up a little of what seemed blood. On the twenty-sixth, more was thrown up, but very offensive. She died on the twenty-ninth, from exhaustion.

Old adhesions were found on the left side of the chest, and the lower margin of this lung was indurated.

The stomach was large; it adhered to the liver and diaphragm; on its lesser curvature there was a perforation about the size of a half-a-crown, opening into a cavity, which was bounded above by the diaphragm and base of the left lung, below by the upper margin of the spleen, left lobe of the liver and the stomach; in front, by the diaphragm. The attachments of the diaphragm to the ribs on the left side, and the pleura at the base of the left lung, were destroyed.

On the anterior and posterior walls of the stomach there were two other perforations, also communicating with the cavity. The cavity and the stomach contained a quantity of highly-offensive coagulated and grumous blood. The spleen was soft, the left lobe of the liver atrophied, and the pericardium contained two ounces of fluid; its inner surface was lined with coagulated lymph.

4. *Chronic Gastritis, passing into acute at times—
Perforation, followed by peritoneal abscess—
Pleuritis—Death at end of twenty days.**

A washerwoman, aged thirty-nine, the mother of five children, entered the hospital on the 26th October, 1844. Her health was good until her thirty-second year, when her last child was born; since then it has been very bad, yet she continued to work.

Eighteen months ago she began to suffer from obscure pains in the epigastrium and left side, passing through to shoulder-blade, and has vomited occasionally. It at length became so severe, that she was obliged to give up her work.

She continued to get worse. Four months ago she entered the hospital, suffering from symptoms of subacute gastritis, obstinate vomiting being the most prominent symptom. She got better and went out.

Two days before her admission, while occupied about her house, she was seized with intense pain in the left shoulder and side, with great difficulty of breathing. She fainted; on recovering, the difficulty in breathing was so great, that she was in danger of being suffocated.

Her face is very anxious—cheeks flushed—head-ache—dyspnœa—severe pain in the epigastrium and left side, darting through to shoulder—bowels confined—disagreeable taste in mouth—skin covered

* Medical Gazette, vol. xxxvi., reported by Mr. Wilks.

with cold clammy sweat. She was treated for subacute gastritis with pleuritis. From a wish not to exhaust her, the chest was not examined.

As she did not improve in a day or two, this was done. Two or three inches below the left scapula, amphoric respiration, synchronous with the movements of the lungs, could be heard, which extended down nearly as far as the loins; metallic tinkling could also occasionally be heard in this spot. Over the scapula, ægophony and a splashing sound was sometimes heard on percussion, but it was not constant. The epigastrium was rather full and very resonant. The medicines given relieved the vomiting, but she sank from pleurisy. For two days before her death, she sat leaning forward, with her head resting on a pillow in front of her. Her appetite was good: fluids gave her considerable pain. A rubbing sound was heard synchronous with the heart's action. She died on the twentieth day of the attack.

The mucous membrane of the stomach presented some red patches; close to the œsophagus on the right side, there was an opening communicating with an abscess. A second perforation, not quite so large as the first, existed on the anterior wall of the stomach. The left pleural cavity contained a large quantity of serous fluid; the lungs were forced up as high as the fourth rib; the heart was quite healthy—not a trace of pericarditis existed. There was no communication between the chest and the abscess.

5. *Perforation—Peritoneal abscess—Purulent expectoration—Death.**

A female, aged twenty, pale and emaciated, entered the hospital, complaining of severe pain on the right hypochondrium and round the umbilicus. Her pulse was quick and weak, tongue red and glazed. She had taken a large quantity of purgative medicine, but without relief.

Ten days after her admission, she was seized with violent palpitation of the heart, and began for the first time to cough and expectorate dirty fœtid purulent matter.

Four days later she suddenly expired after breakfast, without any increase in the symptoms. The colon (transverse portion,) liver and stomach, were glued together. On the posterior part of the stomach, near the great curvature, there was a large ulcer, which had destroyed all the coats of the stomach, and formed adhesions with the pancreas. The adhesions between the different organs formed the walls of an abscess, the matter from which had found its way through the diaphragm into the right lung.

6. *Gastric symptoms—Recovery—Perforation, followed by peritoneal abscess—Death at end of sixteen days.†*

A female, aged twenty-five, single, menstrual dis-

* Dr. Seymour: Lancet, 1843-4.

† The service of Dr. Roupel: reported in the Lancet for 1846.

charge regular, had suffered three months from vomiting, with pain and distension of the abdomen, from which she had quite recovered.

Eight days ago, while out walking, the pain returned suddenly. Her face was flushed; pulse 130, small and thready; tongue dry and brown; abdomen large, tense, and very tender, particularly in the left hypochondrium; respirations forty-nine; bowels confined; urine scanty and high-coloured. She had not had any treatment. Twenty leeches were applied, and calomel and opium given.

The next day she was better, abdomen less tender, pulse 120, tongue dry. Sulphate of magnesia ordered.

Fourth day.—She had slept well; in less pain; pulse eighty-six, soft and regular; tongue dry.

Sixth day.—Bowels confined; passed a restless night; pulse 120, feeble; urine scanty; abdomen again much distended; thirst severe, but afraid to drink, because fluids excited vomiting.

Seventh day.—Vomiting had ceased; pulse 125; some dark evacuations passed; pain in the abdomen, particularly in the left inguinal region. Warm bath; ten leeches to the abdomen.

Eighth day.—The pain had greatly increased during the night, vomiting severe. She died in the course of the day.

The pleura covering the diaphragm and the walls of the chest was injected. The abdomen was distended; and, on opening it, two cavities containing pus were discovered: one in the pelvis, formed by

the walls of the pelvis and by the intestines glued together, lined with thick fibrine, and containing about a pint of pus; the other in the left hypochondrium, in front of the left kidney. Above, it was situated between the diaphragm and left lobe of the liver, as far as the suspensory ligament; below, it seemed bound in by the intestines adhering to the posterior wall of the abdomen. In the stomach, on the centre of its lesser curvature, there was an opening three-fourths of an inch in diameter, corresponding to the attachments of the lesser omentum, which divided the opening into two: the anterior one was closed by a piece of tough fibrine; the posterior one adhered to the pancreas by fibrinous deposit, but not very firmly. The liver was large and pale; the spleen healthy.

*7. Chronic Gastritis—Perforation, followed by partial peritonitis, and collection of serum, gas, and food—Death at end of sixteen days.**

A middle-aged man, who had suffered for four years from disease of the stomach, consisting of gnawing pain and pyrosis, was seen suffering from severe pain in the upper part of the abdomen; the pain could not be, however, referred to any particular part. His face was sallow, contracted, and anxious; bowels confined. A purgative did not relieve him. He became much worse in the night,

* Dr. Stokes: Dublin Med. Journal, 1846.

and severe pain in the abdomen and lower part of the left side set in. He was bled, but the blood was not buffed. A warm bath was followed by relief until the next day. The abdomen was then swollen and divided into two distinct parts, one above the other, divided by a sulcus.

These symptoms continued during the next fourteen days with pain and distension, referred to the diaphragm and lower part of the left side. There were some intermissions to the pain, the appetite was good, and the urine natural. During the last days of life, his tongue became brown and dry. The remedies employed were croton oil and opium : nine grains of the last were given in one day.

On opening the abdomen, a kind of second diaphragm was found to be formed by the omentum, which had formed adhesions almost ligamentous. Between it and the diaphragm, the stomach and liver, some fluid, mixed with ingesta and gas, were found. The liver had lost its concave form. There was a large opening in the lesser curvature of the stomach ; the pylorus was contracted ; lymph existed here and there among the intestines.

8. *Perforation, followed by peritoneal abscess—Death at end of six months.**

A female, aged fifty-seven, had, six months before her admission, been seized, from no known cause,

* Leroux : Cours sur le Généralit. de la Méd., ii., 283.

with severe pain in the left side, loss of appetite, nausea, and vomiting of an insipid filamentous fluid, occasionally (though rarely) mixed with food. The pain, nausea, and vomiting had been much increased by a purgative which had been given her.

On examination, a tumour was found in the left side, very tender to the touch; the abdomen was also tender. She was much emaciated, and had suffered for some time from hectic. She vomited frequently; her skin was hot and dry, tongue coated with white fur, thirst considerable, pulse irregular, feet and legs œdematous, and she had slight cough, with mucous expectoration. She sank fifteen days after admission. The abdomen contained a considerable quantity of serum. The spleen adhered to the great extremity of the stomach, and formed, with some cellular tissue and the peritoneal membrane, a tumour of the size of the two fists. In the centre of this mass there was a cavity, the walls of which were in a putrilaginous state; a communication existed between it and the stomach, by means of a perforation ten lines long and four broad. The cavity contained some broth. The spleen was healthy, save at its superior part. The lungs were diseased.

PERFORATION OF THE STOMACH, AND PERFORATION
OF THE COLON OR DIAPHRAGM.

1. *Of the colon.*—This is a very rare lesion.—It takes place under two circumstances,—1st, *directly* when the ulcers whether simple or squirrroid,

are situated along the great curvature of the stomach,—the ulceration fast destroying the coats of the stomach ; and then, if adhesions have been formed with the transverse arch of the colon, it also becomes affected, and a communication forms between the two organs. 2nd, *indirectly*, when perforation, either of the colon or of the stomach, takes place, followed by the formation of an abscess, which opens into one or the other. In these cases a direct communication is not always formed between the two organs. But few cases of this lesion have been recorded.

1. A child, aged five years,* was taken on the 31st of December, after suffering about three weeks from disorder of the stomach and bowels, with severe pain in the abdomen, and vomiting of a dark brown offensive fluid, like pus, from an ill-conditioned abscess. The vomiting stopped, but he continued to suffer frequently from pain in the abdomen, which was tympanitic ; he lost flesh, and his bowels were confined. On the 20th of February, the vomiting returned, and continued at intervals up to the 10th of March, when diarrhoea appeared, and the vomiting and pain ceased. His appetite was good, but he did not gain flesh. In May, his bowels became again torpid, and his appetite failed. An aperient produced much pain, but did not act on the bowels ; he vomited, however, stercoraceous matters, and continued to

* Mr. Jones of Carnarvon, in Medical Times, 1851.

do so during the months of June and July, every second day, if the bowels did not act. After vomiting, he was always able to take food. He died on the 2nd of August, from exhaustion. The colon was twice its natural size ; it formed several coils, and occupied nearly all the abdominal cavity, and contained some yellow matter like that vomited during life. The stomach was small, it contained a little dark fluid. The two organs adhered to each other ; an opening existed at this point, large enough to allow the finger to pass. The small intestines were contracted, and shortened in length.

2. A male, aged fifty-six,* who had previously enjoyed good health, except occasional dyspeptic complaints, began to feel languid, with impaired appetite, some loss of flesh, and occasional pain in the abdomen ; but he was able to go about and attend to his engagements, which were extensive and fatiguing. These symptoms had continued two or three weeks ; when one day, while walking in the street, he was seized with vomiting, and the matter vomited had the odour of fæces. He felt no inconvenience until a week after, when he was again attacked. After this attack, he was seen by Dr. Combe,—his health was impaired, but his pulse was good, and appetite natural, and his bowels were easily regulated. A few days later the fæcal vomiting again returned, and it continued to occur at various

* Dr. Abercrombie : Diseases of the Stomach, case xi.

intervals,—sometimes three or four times a day,—sometimes not for a week. The matter vomited always consisted of pure fæces, sometimes brought up with difficulty, until he diluted it by swallowing hot water. Throughout his bowels continued regular, or easily regulated by medicine, and his appetite good. He never vomited food or other matters. He lived three months, and died gradually exhausted, without any change in his symptoms, save that a week before death he vomited a considerable quantity of blood. He had occasionally pain in the abdomen, but not distinctly confined to any part. The stomach was empty, contracted, and adherent to the walls of the abdomen, and to the arch of the colon. It was ulcerated along the whole length of the great curvature, and over half the inner surface of the organ. In the centre of the ulcerated part there was a ragged irregular opening, fully two inches in diameter, communicating freely with the colon. The mucous membrane of the colon was ulcerated around the opening; the intestines were otherwise healthy; the caput—colli, and colon, contained healthy fæces.

3. The patient, a male* had suffered more or less from severe dyspepsia, when he was taken with fæcal vomiting, the fæces being partly solid. The attacks of vomiting occurred at periods of variable length,—sometimes not for months. The bowels were easily

* Gowland : Lancet, 1846.

acted on, and always with relief; when they were confined the vomiting occurred. He suffered but slightly, and was able to follow his occupation until three months before his death, which ensued from exhaustion, twenty-seven months after the faecal vomiting appeared. At the lower part of the great extremity of the stomach, there was an ulcer with smooth edges, opening directly into the colon, which at this point formed an acute angle. The mucous membrane of the posterior wall of the latter protruded into the opening, forming a kind of valve. The cicatrix of another ulcer existed in the stomach, an inch outside and above, immediately opposite the spleen.

Mr. Burns of Glasgow,* found the stomach and colon adherent along the whole length of the transverse portion of the latter: both were thickened and indurated, and a communication existed near the pylorus between the two, which would readily admit of the passage of the thumb. The pylorus was thickened. The patient, a middle-aged man, had been much troubled with violent pulsation in the epigastrium. This was found to be caused by the root of the coeliac artery.

2. *Of the Diaphragm.*—This lesion is of much less frequent occurrence than perforation of the colon, from the difficulty which exists to the formation of adhesions between the stomach and dia-

* Monro : Morbid Anatomy of the Stomach and Gullet.

phragm. Lieutaud (*Hist. Anat. Medica.*, obs. 142,) mentions the case of an elderly female, for a long time subject to pain in the stomach and vomiting, who died suddenly from suffocation. The stomach on the left side was found adhering to the diaphragm; an opening existed at this point, through which food had escaped into the pleural cavity.

DURATION.

1.—*Where the peritonitis was general.*—Of 108 cases where the duration of the disease was stated, death ensued in—

8 immediately, or within two, three, four, or six hours from the shock.

5 within 9 hours, from inflammation.

9	„	12	„	„
6	„	15	„	„
8	„	18	„	„
7	„	21	„	„
17	„	24	„	„
5	„	27	„	„
4	„	30	„	„
5	„	33	„	„
7	„	36	„	„
1	„	39	„	„

In the six remaining cases, death did not ensue in one until forty-eight hours after the perforation had taken place;—in a second, not for seventy-eight hours;—in a third, not for five days;—in a fourth, not for seven days;—in a fifth and sixth, not for nine days.

2.—*Where the peritonitis was partial, peritoneal abscess being excited.*—In the fatal cases, seven in number, death ensued in two of them in sixteen days;—in a third, it ensued fourteen days after purulent matter began to be brought up, in consequence of the abscess making its way into the lungs;—in a fourth, twenty days;—in a fifth, twenty-nine days;—in a sixth, six weeks;—in a seventh, six months.

DIAGNOSIS OF PERFORATION OF THE STOMACH, FROM
PERFORATION OF THE DUODENUM AND RUPTURE OF
THE STOMACH.

Perforation of the duodenum is a rare lesion, compared with perforation of the stomach. The pain when it is perforated commences in the right side, near the margins, or below the right false ribs, and extends gradually down the side, and from thence over the abdomen. The patient rarely becomes unconscious in perforation of the duodenum, unless the opening is very large, and the quantity of the matters effused considerable.—*See Perforation of the Duodenum.*

Rupture of the stomach is also a very rare lesion, compared with perforation of the organ.—*See Rupture of the Stomach.*

TREATMENT OF PERFORATION.

When a large quantity of food has escaped from the stomach, no treatment can be of any service;

but on the other hand, when it is small, the best results may be expected from the judicious use of opium, mercury, bleeding, strict confinement to one position, and the introduction of but as little nourishment as possible into the stomach. Opium should be given in the form of tincture or sedative solution, in doses of from 60 to 100 minims, every fifteen, twenty, or twenty-five minutes, until the severe pain is mitigated; then it should be administered in smaller doses and at longer intervals, so as to keep the patient under its influence. The patient may be brought under the influence of mercury, by the use of frictions with the strongest mercurial ointment to the legs or thighs. It does not seem, however, advisable to induce severe ptyalism, as it may render the formation of adhesions between the edges of the perforation and the adjacent organs difficult of formation; or, when formed, remove or weaken them. If blood is removed, it should be from the abdomen, by the application of a considerable number of leeches, the bleeding being encouraged by warm wet cloths.

Strict confinement to one position should be enjoined, to favour the occurrence of adhesions of the edges of the perforation with some adjacent organ, to prevent the matters already effused extending, and to avoid the occurrence of fresh effusions, or additions to those which have already escaped. The stomach should be kept as empty as possible; the thirst being assuaged by sucking a piece of wet rag,

moistening the lips from time to time with a teaspoonful of water, and by sponging the limbs and body every three or four hours with cold or tepid water.

If the state of the patient should demand the introduction of nourishment, glisters of beef tea, with or without wine, should be had recourse to. When a change of position becomes imperative, it should never be, however, allowed before the seventh day; if possible, not until after the fourteenth, and then it should be done in the gentlest manner, and by a person taking hold of each corner of the blanket or sheet, and conveying the patient to another bed.

After recovery, the diet must be very strict for some time; it should consist of milk, plain beef or mutton tea, or turtle soup, taken in small quantities at a time and at short intervals, to guard against the occurrence of distension of the stomach, and all risk of the adhesions giving way.

CHAPTER VI.

RUPTURE OF THE STOMACH.

VARIETIES.—*It occurs under two forms :—1. As rupture of all the coats. 2. As rupture of the mucous or peritoneal coat.*

CAUSES.

I. PREDISPOSING.—Males seem much more liable than females ; for, of seven cases which I have been able to collect from different sources, six of the number belonged to this sex. The patients were fourteen, twenty, twenty-two, thirty, and thirty-four years of age. One was an adult, probably middle-aged. The female was middle-aged.

II. EXCITING.—1. *Of rupture of all the coats.*—In the case of the female,* difficult digestion had existed for five or six months. Under strict diet she had become much better. On leaving the hospital, to make up for her previous forced abstinence, she ate very heartily. Severe weight was soon experienced in the stomach, with nausea and retching ; in the midst of which, great pain suddenly set in, accompanied by a sensation as if something had given way.

* Lallemand : Dict. Des. Sc. Médicales, tome xliv.

In the case of one of the males, aged thirty,* the rupture occurred five days after an attack of ague, and three days after symptoms of inflammation of the kidneys had existed, while he was returning from the water-closet.

In two of the other cases, one aged thirty-four,† the other twenty-two,‡ it occurred during severe attacks of spasms of the stomach.

2. *Of rupture of the mucous or the peritoneal coat.*
—In one case the patient was a medical man.§ He had suffered for some months from symptoms of gastric derangement. Suddenly, after a very hearty dinner, he was taken with great difficulty of breathing and distension of the stomach, weak pulse, and cold clammy perspiration. While attempting to evacuate an enema which had been given him, emphysema suddenly appeared, and extended rapidly all over the body.

In a second case, the patient was a lad, aged fourteen.|| He was taken the second day—after eating largely and drinking considerable quantities of gin and water at a Christmas feast—with nausea and vomiting, which continued until the third day, when difficulty of breathing set in, accompanied by difficulty in swallowing, and incessant retching.

* Monci : *Annali Univ. di Med.*, 1845.

† Weeks : *Medico-Chir. Transact.*, vol. xiv.

‡ McFarlane : *Glasgow Med. Jour.*, vol. ii.

§ Burgrave : *Bul de la Soc. de Méd. de Gaud*, 1844.

|| Chevalier : *Medico-Chir. Transact.*, vol. v.

In a third case, the patient was a servant,* aged twenty. He had, while following his master, during very inclement weather, been taken ill. When seen, he was suffering from great difficulty of breathing, inability to swallow, and a constant feeling as if he was drowning, and he had an emphysematous swelling in the neck.

CHANGES OBSERVED AFTER DEATH.

1. *In rupture of all the coats.*—In Lallemand's case, induration and narrowing of the pylorus existed. The rupture was five inches long, situated obliquely on the anterior and middle part of the stomach; its borders were thin and irregular, but they presented no traces of any anterior disease.

In Monci's case, the rupture was two inches long, situated on the anterior part of the stomach, its edges slightly hypertrophied, and dotted with redness, which extended for a short distance on the mucous membrane, beyond the rupture. In the cases where the rupture occurred during spasms: in one instance the lesion was four inches long, and it extended from near the cardia down to below the lesser curvature; the peritoneal coat was more torn than the muscular and the mucous. On the posterior wall there was a second rupture, three inches long, and several smaller ones existed near the great cur-

* Heister : Obs. Medicæ Miscel., obs. xv. in Haller's Disput. ab Anatom. lib. vi., 741.

vature ; but they did not penetrate beyond the peritoneal coat. The mucous membrane was covered with a dark-coloured secretion ; the membrane itself was of a deep red colour, softened, and partly emphysematous. In the other case, the rupture was three inches long, situated on the anterior wall : its edges were ragged, and under the peritoneal membrane several ecchymosed patches existed.

2. *In rupture of the mucous or peritoneal coat.*—In two of the cases, general softening of all the coats were observed. In Burgrave's case the stomach was enormously distended. On drawing it forward, the omentum gave way and a rupture ensued, occupying the whole length of the lesser curvature. The muscular and the mucous coat were at the point where the rupture had occurred in a state of pultaceous softening. The last membrane, particularly near the opening, was injected with dark-coloured blood and sensibly thinned. In Heister's case, the stomach, on its left side, where it was in contact with the diaphragm, was black and livid ; and on being touched, it ruptured to the extent of two inches, and allowed its contents to escape. The lungs, liver, and diaphragm, where they were in contact, were as if corrupted.

In Chevalier's case, the mucous membrane of both the stomach and duodenum was found torn—that of the last the most ; and close to the pylorus it extended nearly round the circumference of the intestine, which was at this point easily torn.

SYMPTOMS.

1. *Of all the coats.*—The symptoms resemble in every way those present in perforation. The patient utters a cry that something has given way in his inside, from the escape of the contents of the stomach—that boiling water is flowing over his abdomen—becomes insensible, and dies in this state in the course of a few hours. When the rupture ensues, however, in consequence of spasms, the stomach being usually empty, the symptoms which mark the occurrence of the rupture may not be so strongly marked: the result proves equally and scarcely less rapidly fatal.

In Mr. Weeks' case, the patient, a man aged thirty-four, had suffered for two years from frequent paroxysms of pain in the stomach, lasting several hours, and terminating by vomiting.

“Last Christmas he vomited up blood, which reduced him very much. Since this time the attacks have been more frequent. On the 13th of April, he entered St. Bartholomew's Hospital, suffering from severe pain, extending from the epigastrium over the whole of the abdomen, but without tenderness or distension. Nausea, but no vomiting; pulse, frequent; tongue, clean. He attributed his present attack to some spirits and water which he had drank.

“He had a similar attack a week ago, after drinking some spirits and water.

“He was much better the next day; the pain had

disappeared ; no nausea ; pulse weak ; tongue clean. At eleven o'clock P.M., he was taken with severe pain. When seen one hour later, the muscles of the abdomen were hard and contracted ; no tenderness ; pulse small and feeble ; face expressing great anxiety. Sixty drops of laudanum were given and repeated, but without relief. After suffering for two hours from acute pain, violent vomiting came on. After this the pain subsided somewhat, and the vomiting did not return, but he died at four A.M."

In Dr. McFarlane's case, the patient, "a man aged twenty-two, was seized at eight P.M., with severe pain in the region of the stomach ; he had had similar attacks before, but less severe. Some whiskey was given, which was followed with slight relief, but only for a few minutes. At two o'clock, A.M., his agony became extreme from violent wringing pain. He fainted and soon afterwards vomited some dark brown fluid. He was bled, and some anti-spasmodic and cathartic medicine given, but without relief. When seen by me at three o'clock, A.M., his pulse was one hundred and forty ; legs drawn up ; face very anxious. Pain still severe, but not so excruciating as it had been. He died at eight o'clock, A.M."

2. *Of the mucous coat.*—The symptoms differ materially from those present in rupture of all the coats, from there being no escape of the contents of the stomach into the cavity of the peritoneum.

In Burgrave's case, "the patient, a medical man, frequently guilty of errors in diet, had suffered for

six months from symptoms of gastralgia. One day, after a very hearty dinner, he was taken very unwell ; his skin was cold and covered with perspiration,—pulse scarcely perceptible,—voice nearly suppressed,—respiration anxious. His abdomen became enormously distended and tense. An enema was given him, and, while attempting to evacuate it, emphysema appeared suddenly, extending to the neck and producing the most alarming indications of suffocation. The action of the lungs was partly suspended, the surface of the body purple. Every effort to inspire increased the emphysema and the other symptoms ; he incessantly made involuntary efforts to swallow, and water, for which an intense desire existed from the first, was swallowed with the greatest difficulty ; his voice was plaintive. Death took place immediately after an attempt to drink.”

In Heister’s case, the patient, “a man aged twenty, was taken ill while following his master in very inclement weather, and was obliged to remain at Helmstadt.” The symptoms observed were, “difficulty of breathing, inability to swallow, a constant feeling as if he was drowning, which caused him to cry out, eyes fixed, sight dim, and the pulse weak. There was a soft emphysematous swelling extending from the chin to the chest ; a noise was induced by pressing it, and the patient kept constantly spitting. He died in the night.”

In Mr. Chevalier’s case, the patient, “a lad of fourteen, was taken the day after eating and drinking

largely, with violent vomiting, which continued the next night and morning. At two P.M., on the third day, his breath became short, and he was unable to swallow;—efforts to vomit incessant. When seen his face was flushed and turgid, breathing anxious and interrupted—pulse irregular—extremities cold—great anxiety in the region of the heart, which was increased by pressure, and its action was irregular. The efforts to vomit were most distressing, and they generally ended in his bringing up some white froth. The attempt to swallow was accompanied by violent and agonising spasm of the larynx, which made him drop the cup from his hand. Pressure on the right side of the stomach occasioned much pain, and immediately produced the efforts to vomit. Towards the evening he vomited nearly two pints of blood, after which he felt easier and demanded food, and ate some dry toast. The vomiting soon returned, and he brought up, first, that which he had taken, then something exceedingly bitter, and died soon afterwards.”

CHAPTER VII.

CANCER OF THE STOMACH.

VARIETIES.—1. *Squirrroid*.—2. *Encephaloid*.—3. *Colloid*.

CAUSES.

I. PREDISPOSING.—Males are more susceptible to this disease than females; for, in eighty-six cases which I have collected from different sources, and observed, fifty-seven, or two-thirds, belonged to this sex. Valleix, out of thirty-three cases which he collected, found that twenty of the number were males. These conclusions differ, however, from those arrived at by D'Espine and Lebert: the first found that, in 111 cases, fifty-four were males, and sixty-two females; the last, in forty-two cases, found that nineteen were males, and twenty-three females.

It is difficult to account for this discrepancy in the results, unless they drew their conclusions from cases in which no post-mortem examinations were made. This was evidently the plan followed by D'Espine, who drew up his table from the bills of mortality of Geneva.

I have frequently seen certificates, stating that the patients had died from cancer of the stomach, when death had, in fact, ensued from chronic inflammation; and I have also known cases where coffee-like or

chocolate-coloured fluid has been vomited, termed cancerous, which have been found after death to be simple ulceration.

This greater liability on the part of males to this disease is not confined to this organ, I have also found it to exist in cancer of the œsophagus* and in *primary* cancer of the rectum. In thirty-three cases where the œsophagus was affected, twenty-three were males; and in twenty cases where the rectum was its seat, thirteen were males.

The predisposition is more pronounced at some periods of life than at others. From the following table it will be seen that the liability is small in both sexes before the thirty-fifth year. In females from this time up to the seventieth year the liability was nearly equal, being, however, rather more pronounced from forty to fifty, than at any other period. In males the liability was very great from the thirty-fifth to the fiftieth year; for twenty-eight of the fifty-seven cases occurred during this period: the liability was also rather marked from the fifty-fifth to the sixty-fifth year, but much less than during the other periods.

In connection with the forms of the disease: it seems that the encephaloid is more liable to occur before the fortieth year than the squirrroid; for, of fourteen cases which were observed before this period, thirteen were of this form. Subsequent to the

* Diseases of the Œsophagus— Association Medical Journal, 1853, art. *Cancer*.

fortieth year and up to the sixty-fifth, the liability is more equal, particularly from forty-five to sixty-five; but from the sixty-fifth to the eightieth, the squirr-
hoid form seems to predominate, for four out of seven cases observed were of this form.

Ages.	Females.	Males.	Total.	NATURE OF THE DISEASE.	
				Encephaloid.	Squirr- hoid.
20 to 25	1	2	3	3	—
25 „ 30	1	—	1	1	—
30 „ 35	—	2	2	2	—
35 „ 40	3	5	8	7	1
40 „ 45	5	13	18	11	7
45 „ 50	5	9	14	9	5
50 „ 55	4	3	7	4	3
55 „ 60	3	7	10	6	4
60 „ 65	3	6	9	6	3
65 „ 70	3	2	5	2	3
70 „ 80	1	1	2	1	1
	29	50	79	52	27

Habits and occupations.—Bayle (*Dict. des Sc. Médicales*) considered that celibacy acted as a predisposing cause. There does not seem, however, the slightest grounds for this opinion. The rich, from the observations of D’Espine,* seem more susceptible than the poor; for he found that, out of twenty-one cases, sixteen of the number belonged to this class.

In the cases which have fallen under my own notice the patients were generally mechanics.

* *Annales d’Hygiène*, 1847, cited by Lebert: *Maladies Cancéreuses*. Paris, 1851.

“It is,” observes Lebert, “considered that residing in towns predisposes to cancer of the stomach. According to the researches of D’Espine, in 108 cases where the residences of the patients were noticed, fifty-three resided in the towns, and fifty-five in the country. We may observe that in the canton of Geneva the inhabitants are nearly equally distributed between the towns and the country.”

The opinion that residents in towns are more susceptible than residents in the country, is not, I think, unfounded, as the occupations of the patients given in the table below will shew. But the predisposition seems to depend less upon atmospheric influence than upon the mode of living and occupation.

In the majority of the cases, the habits of the patients were rather intemperate: some took a certain quantity of spirits daily, without ever becoming intoxicated; others, again, indulged freely for several days once a week, or once a fortnight, then worked hard, and often living hard at the same time.

The following table shows the occupations of seventy-seven male cases:—

Six were coach or cabmen.

Three were domestics.

Six were carpenters or sawyers.

Six were sculptors, masons or bricklayers.

Seven were labourers (two were nightmen, one a coalheaver, one a street crier, and one a shepherd).

Two were pedlars.

Four were porters.

Four were blacksmiths.

Two were weavers (one had been a soldier).

Two were priests.

Three were merchants.

Four were harness or saddle-makers, or curriers.

Four were tailors (one had been a soldier).

Eight were boot or shoemakers (one had been a soldier).

One was a looking-glass silverer (suffering at the time from the effects of mercury).

One was a turner.

One was a perfumer.

One was a worker in tobacco (had been a lace maker).

One was an engraver.

One was a clerk (had been a soldier).

One was a copper-founder (had been a soldier).

One was a pasteboard-maker.

One was a porcelain-painter.

Seven had no occupation : their habits were generally intemperate ; in one, a relative had died from cancer ; another had been subject to gastrodynia for a long time ; in three it occurred after blows, kicks, or falls on the epigastrium.

Mental anxiety.—Both Lebert and Valleix incline to the opinion that mental anxiety acts only as a cause, by deteriorating the health, and thus favouring the development of the disease. This is no doubt the case generally ; but it seems to excite the disease

sometimes, and when it is formed it certainly hastens the fatal termination.

In two of the cases collected by Valleix it was referred to this cause, and in three of Lebert's cases the origin of the disease was referred back to periods when the patients had suffered in mind. In four of the cases which have fallen under my own notice : in one it was attributed to the loss of his situation as butler, which he had held for forty years, for some misdemeanor ; in a second, from the loss of his wife ; in a third, from the loss of his only son ; in a fourth, from reverses in trade. In a case reported by Dr. Law (*Dublin Medical Journal*, 1835), it was developed after reverses in life. In the Emperor Napoleon the disease appeared after his confinement at St. Helena. His father died from the same disease.

The author of the article on Cancer, in the *Encyclopædia of Practical Medicine*, states that it was very prevalent during the Reign of Terror.

Burgeois (*Jour. Gén. de Méd.*, tome 94) mentions a case where the disease began to show itself when the allies entered France.

Leroux (*Cours. sur les Généralit. de la Médecine*) mentions five cases ; in three of them—one a female aged forty-seven, and two males aged forty and sixty-five—from great and continued anxiety ; in a fourth case, a male aged seventy, from the grief excited by the loss of his daughter ; in a fifth case, a male, the loss of his son in the massacre at one of the

prisons threw him into a fever; on his recovery, he began to suffer from difficult digestion.

Marotte, (*Arch. Gén. de Méd.*, 1135,) reports the case of a female, aged sixty-six, in whom the disease was excited by grief, induced by the loss of her husband. Andral (*Clinique, Méd.* ii., 532,) reports the case of a male, aged sixty, in whom the digestion had first become troubled five years before, from mental anxiety.

Injury to or pressure on the epigastrium.—These seem to act frequently either as exciting or predisposing causes. In five cases it was attributed to kicks or falls against some hard object; in one, to a blow from the fist. In some of the cases, the disease followed immediately after the blow; in others, not until after the effects of the injury had disappeared: in two of the cases, not until some months had elapsed; in another, not for three years.

Pressure seems also to favour the development of this disease. It is probably to it that boot-makers are more liable than any other class of men, to this as well as to other diseases of the stomach; their intemperate habits assisting.

Injuries.—In one case, the disease followed a fall on the back; in another it also followed a fall, but the only injury received was a twist of the ankle. The disease in the last case was developed immediately afterwards. His daughter died at forty-two, of cancer of the womb;—another daughter, aged thirty-nine, is now under my care, suffering from

uterine disease. In a third case, it followed a strain of the epigastrium, from over-reaching.

Other causes.—In two of the cases, it was attributed to over-fatigue, from long journeys on horseback ; in another, to over-work.

In two of the cases, it occurred during or after suffering from the effects of mercury ; in one case, after severe ptyalism from mercury, given during an attack of rheumatism,—in the other, the patient was a looking-glass silverer, he had mercurial tremors.

It was very common to find that the patients had suffered from catarrhal or rheumatic affections, particularly the first, for some time before the disease appeared.

In one case, it followed immediately after an attack of simple dyspepsia, of some weeks duration. In this case, the patient's mother had died of cancer of the stomach. In another, it commenced immediately after an excess in eating, when convalescent from rheumatism.

In one case, it commenced immediately after an ulcer of long standing had healed in the nose. A similar case has been recorded by Cruveilhier. The digestion in this case did not become disordered until a year afterwards.

In one case, it occurred six months after a fistule of the rectum of some standing had been cured by an operation.

Frank considered that intermittent fevers, particularly those which had not been properly cured,

were apt to excite the disease. Leroux mentions the case of a harness maker, in whom the disease appeared immediately after an ague had been cured by bark.

Frank also considered that fasting acted as a cause; and mentions, in support of this opinion, the case of a priest, who had for twenty years said mass very early in the morning, which rendered it necessary that he should take his breakfast very early. From a change in the time of saying mass, he was obliged to fast the whole morning. Soon after this change had taken place, the disease made its appearance.

In *females*, the development of the disease was intimately connected with the habits,—the cessation of the menstrual discharge,—cancer of the breast,—healing of sores of long standing, and with chronic gastritis or gastrodynia.

Of twenty-six cases: in six, the habits were noted as being intemperate,—in ten, the disease appeared immediately after the menstrual discharge had ceased, or chronic gastritis or gastrodynia, then appeared and lasted sometimes for years before the symptoms of cancer became fully marked. In some of the cases the digestion had been deranged for years. In two cases, the disease followed the healing of sores of long standing—in one, on the nose—in the other, on the legs; in another case, it occurred after the breast had been removed: the cancer of the stomach in this case was primary.

Hereditary transmission.—In seventeen only, out

of eighty-two cases, was its hereditary source named. Lebert found that the disease was hereditary in five only out of forty-two cases.

In six of the seventeen cases: the mothers in two of the instances had died from cancer of the womb; in three from cancer of the breast; and in one from cancer of the stomach. Barras (*Sur les Gastralgies*,) I believe, reports or cites instances where the mother and two sons died from this disease. Mr. Gaitskell, (*London Med. Reposit.*) has reported the case of a female who died at twenty-six from this disease; her mother died at fifty-six, and her sister at twenty-seven.

In five of the cases, the fathers had died, in four of the instances, from cancer of the stomach, in one from cancer of the face.

In the other six cases: in three the aunts had died—in two from cancer of the breast, in one from cancer of the uterus; in the other three, the uncles had sunk—in two from cancer of the stomach, in the other from cancer, but of what part, it was not known.

The disease seems to be more frequently produced "as an accidental product," than as a transmitted one. When it is transmitted, it seems, at least from what I have been able to observe, generally confined to two generations, and to one member of the family, in a few instances to two. It seems rarely, if ever, to pass to the third generation.

The circumstances which assist its development

seem to be the same as those which favour the production of tubercles,—namely, defective general or local nutrition, by which the growth of the disease, if its germs exist, or the perversion of the structure of the cells, either of the normal tissues, probably the cellular, or of the accidental deposits: the last, being generally exudatory, is favoured.

Without, however, claiming an inflammatory origin for the disease, yet it so often supervenes on, or is blended with, chronic gastritis, that the observer cannot fail to be struck with the intimate connection which *seems* to exist between the two.

Broussais considered, erroneously, that cancer was a result of inflammation (hypertrophy). This opinion was upheld by Andral; but in his *Précis d'Anatomie Pathologique*, he remarks:—

“My opinion of the nature of cancer is somewhat modified; and I do not any longer consider it to consist of a state of hypertrophy of the cellular tissue.”

INFLUENCE OF DIFFERENT PERIODS OF THE YEAR IN INDUCING AND TERMINATING THE DISEASE.

Lebert, in twenty-eight cases which he noted, found that in ten of the number the disease made its appearance in the first three months of the year; five out of the ten cases in January. The same number appeared also in September. The second, third, and fourth quarters did not present any difference, for six cases commenced in each. It is

extremely difficult to determine when cancer really commences. I have carefully examined sixty-two cases, and the following table will show the months in which the symptoms first became *marked*.

From it, as Lebert found, January was the month in which the greatest number of cases seemed to commence; but in September only two cases occurred; while he found that quite as many cases made their appearance in this month as in January. The disease seems certainly to have a greater tendency to occur in the first than in the last six months of the year.

In January 8 cases	In July 4 cases
„ February 4 „	„ August 7 „
„ March 6 „	„ September 2 „
„ April 5 „	„ October 6 „
„ May 5 „	„ November 4 „
„ June 7 „	„ December 4 „
<hr/>	
Total in first six } months of year } 35	Total in last six } months of year } 27

Of thirty-two cases in which he noted the time when death took place, he found that seven sank during the first quarter, six during the second, seven during the third, and twelve during the fourth.

In 116 cases noted by D'Espine,* thirty sank during the first quarter, twenty-six during the second, twenty-eight during the third, and thirty-two during the fourth.

In 91 cases which I have collected, twenty-six

* Annales d'Hygiène, 1847, cited by Lebert.

died during the first quarter, nineteen during the second, nineteen during the third, and twenty-seven during the fourth.

The following table will show the months and the number of cases which sank in each. The months in which the mortality was most pronounced, were January, February, June, October, November, and December. In D'Espine's table, the months in which it was most pronounced were January, March, May, September, November, and December.*

D'Espine.			Myself.		
January	11	} 1st Quarter, 30	January	13	} 1st Quarter, 26
February	6		February	9	
March	13		March	4	
April	5	} 2nd Quarter, 26	April	3	} 2nd Quarter, 19
May	13		May	7	
June	8		June	9	
July	8	} 3rd Quarter, 28	July	5	} 3rd Quarter, 19
August	9		August	7	
September	11		September	7	
October	9	} 4th Quarter, 32	October	11	} 4th Quarter, 27
November	12		November	8	
December	11		December	8	
<hr/> 116			<hr/> 91		

The difference between the two results is very trifling, when taken on the quarterly average. In both, the deaths were more numerous in the first and fourth quarters than in the second and third.

That the deaths should be more frequent during

* I have not been able to make use of Lebert's table, from there being some mistake in the numbers stated to have died in the third quarter.

the first and last than the second and third three months of the year, is what the practitioner would expect.

I may observe, that, in all the cases which I have given, a post mortem examination was made, and no doubt existed as to the cancerous nature of the disease.

CHANGES FOUND AFTER DEATH.

It is generally considered that the cellular tissue is the part in which the disease commences; the mucous, muscular, and peritoneal coats becoming subsequently implicated as it extends. How far this opinion holds good, as a general rule, I am unable to say. It seems, however, from what I have been able to learn, that all the tissues are susceptible, in a greater or lesser degree, and all foreign deposits—those of an inflammatory origin probably more than any others—to *primary* cancer; while the blood-vessels, or the lymphatics, in which the cancer cell is intercepted, forms the point of departure for *secondary* cancer, from whence it extends, destroying the adjacent tissues, less by implication than by absorption. I have only had one opportunity of observing *primary* cancer of the stomach in an early stage. The patient, a man aged forty-five, died from hydrothorax. The cancer was of the diameter of a shilling, and about half as thick: it protruded into the stomach, and both the mucous and peritoneal coats adhered to it, the first much more intimately than the last, which was separated by a few pale attenuated muscular fibres. It was en-

closed in a rather dense capsule, and when incised it presented a somewhat yellowish aspect. The cut surface yielded, when scraped, a fluid, in which, under the microscope, cancer cells were detected.

In speaking of cancer, it is usual to consider it under three forms or varieties—namely, squirrroid, encephaloid, and colloid; and under two aspects or states—*primary and secondary*.

1. *Primary*.—The squirrroid and encephaloid are generally met with distinct from each other, but the first seems sometimes to pass into the second. The colloid seems to be a stage of the encephaloid; or an alteration, rather than a distinct form. The squirrroid form is not so frequently observed as the encephaloid; for, out of ninety-five cases, sixty-two were encephaloid, and twenty-nine squirrroid, while only four were colloid.

The following are the characters of the *squirrroid* form :—*

“It is formed of fibrous tissue which interlace, and in the interstices, which are very narrow, the proper elements of cancer are enclosed. These elements present certain peculiarities :—the cells are few in number; but the cellules, on the contrary, are very numerous, but they are small, irregular, and flattened in different directions; many of them are furnished with tails, while others are lengthened, or even crooked. But as the cancerous tumour increases in

* Brocca : Anatomie Pathologique du Cancer, Mem. de l'Acad. de Médecine,” tome xvi.

size and softens, they become more regular in form and larger."

The progress of squirrroid cancer is usually slow : this, as Brocca observes, "depends on the presence of but few blood-vessels, and the resistance offered by the fibrous tissue."

Tracing a case of squirrroid cancer through its different stages : it will be found first to increase in magnitude, chiefly in a lateral direction, and at the expense of the muscular and cellular tissues ; at the same time the mucous membrane becomes adherent, and later the peritoneal. The first, then, either ulcerates, or, what is more frequent, the cancerous tissue below it softens, and it gives way. The ulcers formed in the first manner are generally shallow and small in circumference ; while those which form in the last are deep, sometimes almost fistulous : the edges, particularly in the first, are somewhat regular at the outset, but in a short time they become irregular, raised and thickened. This form never assumes a large size : when situated at the pylorus, it sometimes reaches the magnitude of an orange ; but the enlargement is due, not, as is frequently the case in the encephaloid form, to one large tumour, but to thickening—never, however, very marked—of the walls of the opening and the adjacent parts of the stomach. It invariably forms patches varying in size from a seven-shilling piece to the palm of the hand, and it extends, as before observed, in a lateral direction, scarcely ever being more than one-half or

three-fourths of an inch thick. In all the twenty-nine cases, the cancer was found ulcerated—in a few only superficially, but in the majority deeply; sometimes in a sinuous manner. In the latter case the ulcers had frequently penetrated the peritoneal coat; sometimes communicating with peritoneal abscesses, generally of small extent; sometimes however, when the perforation had not been preceded by adhesions of the peritoneal coat with the adjacent organs, the openings were large, and a communication existed between the cavity of the stomach and the cavity of the peritoneum. Sometimes the ulcers had penetrated the liver, and had produced an ulcer of some magnitude, often corresponding in size to the one in the stomach, or an abscess. Sometimes the ulcers had penetrated the pancreas.

This kind of ulceration, penetrating to the surface of the peritoneal coat, and into organs adjacent to the stomach, is a marked peculiarity of this form of cancer; the encephaloid form generally confining itself to the coats of the stomach.

The edges of the ulcers were invariably more or less irregular and thickened: sometimes they were fungoid or tuberculated; their surfaces were also irregular, and covered with dark-coloured fluid or slough. In the other parts of the stomach, the mucous membrane was sometimes thickened; sometimes it was softened—the other tissues in some cases participating—and its colour varied from grey to a purple red. It was sometimes the seat of excrescences, and not unfrequently studded with ulcers.

The cellular tissue was sometimes hypertrophied in the immediate vicinity of the ulcer: it was often infiltrated with serous fluid, or the seat of cancerous prolongations, or secondary formations, varying in size from a pea to a walnut, and in number from three to twelve.

The muscular coat was hypertrophied when the vomiting had been severe; when not, it was often natural. In the immediate vicinity of the cancer, it was sometimes thickened from cancerous infiltration; in these cases its characters were more or less destroyed—sometimes, from the effect of pressure, its fibres were pale and atrophied.

The peritoneal coat was frequently intact; sometimes, however, it was adherent and implicated in the general cancerous alteration: in a few instances, it was the seat of secondary deposits, seldom exceeding a filbert in size. In two cases, however, fungous tumours of considerable magnitude existed; in one the tumour was situated immediately opposite the ulcer, in the other at some distance from it.

In the *encephaloid* form,* “the tumour in the *first* or crude state is rather small generally, regular in form, and surrounded by a more or less dense cellular membrane, by which it is, to a certain extent, isolated from the surrounding tissues. When incised it presents an homogeneous, lardaceous, semi-transparent, sometimes blueish appearance. If pressed, a little milky juice exudes, but this character may be wanting when the tumour is very recent. But even in

* Brocca.

this case it is only necessary to grate its cut surface with the edge of the knife to obtain the cancerous fluid, in which, with the aid of the microscope, the histological elements of cancer can be discovered."

"If the grating is continued, a small stream of water being at the same time directed on the surface, it loses its polish and homogeneity. If it is examined in this state, thin lamella will be seen interlacing in every direction, which will, if a small portion is placed under the microscope, be found to consist of cellular tissue, and it is to this that the tumour owes its density. Sometimes the presence of the cellular tissue is with difficulty demonstrated, from its being deficient; the tumour, when this is the case, is rather soft. In some instances the lamella, instead of being very fine and in close approximation, may be separated by large cellules. Müller has given the name of areolar cancer to this state.

"In the squirrroid form the fibrous portion increases with the cancerous elements, but in the encephaloid it diminishes. The consistence of the encephaloid form diminishes as the tumour increases in volume, and it at length becomes of the consistence of the brain, and in a more advanced stage, quite diffluent. This form is more vascular than the squirrroid, and the softer it is, the greater the vascularity."

This form is met with under two states: 1st, as degeneration of the coats; 2nd, as a tumour, varying in size from a large orange to a small cocoa nut. The first was most frequently observed—it occurred in thirty-eight of the sixty-two cases.

In the cases where tumours were observed, the first state was constantly met with, sometimes in connection with the tumours, sometimes quite distinct. Unlike the squirrroid form, the degeneration was invariably extensive, and it varied in thickness from half-an-inch to two inches. Sometimes, when the last was pronounced and the degeneration extensive, the cavity of the stomach was greatly diminished in size: in one case which fell under my notice, it would not contain more than half-a-pint of fluid: and in an instance recorded by Dietrich, it was not larger than an orange. The disease was almost invariably confined within the peritoneal and the mucous coats. The last membrane was, except in two or three instances, ulcerated, although in a great number of the cases it did not take place until a short time before death; but the first was frequently unaffected. The coats most liable to the disease were the cellular and the muscular; the mucous coat becoming implicated, from the disease extending. Ulceration seemed to be established by softening of the cancerous mass. The ulcers were generally deep, sometimes they were fistulous, communicating with cavities in the cancerous mass containing purulent or ichorous matters.

The cancerous mass on section presented various grades of consistence, from cartilage to thin pap or thick mucilage; and of colour, from whitish-yellow, or semi-transparent, to venous red, or even black.

When tumours were found, they either sprang from a broad base—one large one existing; but

sometimes there were several small ones, situated some distance apart. Sometimes the tumours had a narrow base, spreading out like the head of a cauliflower, sometimes with one or even two smaller ones springing from them. The tumours, particularly when large, were invariably ulcerated, or they contained collections of pus, ichorous, or black fluid, communicating with their surfaces by one or more openings.

“The *colloid* form* possesses neither tissue nor anatomical element. It is, in fact, an amorphous product—the result of exhalation, deprived of all vitality—its properties being strictly mechanical. It is not confined to tumours of a cancerous character, for it is met with in accidental tumours, glands, and in pre-existing cavities. Examined with the microscope, it will be found quite transparent, presenting neither globules or granules, with a few traces of cellular tissue crossing in every direction.

“The specific elements of cancer are present, under the form of free *noyaux*; but they are few in number, as are also the cellules. These present themselves under very variable characters. In cancer of short standing they are small, but in that of long standing they are large, and the cells are numerous. In these cases the cellules are very regular, and either spherical or elliptical in shape.

“It often happens that the same tumour will pre-

* Brocca.

sent these opposite appearances: the transitions between the two can be easily followed."

2. *Secondary*.—The secondary form is constantly met with in connection with the *primary*; sometimes in the stomach, but more frequently in other organs, particularly the liver, under the form of tubercles, varying in size from a split pea to an orange, from cancer germs being conveyed by the lymphatics or blood-vessels. The period when these secondary formations take place differs materially in the two forms.

In the squirrroid they rarely if ever take place until after softening sets in; but in the encephaloid they form very soon after the disease has been developed.

These secondary formations, whether arising from the squirrroid or the encephaloid forms, invariably approach in their characters to the last. The cancerous elements are considerable in quantity, the fibrous, scanty, and very fine, (except the capsule, which is sometimes rather dense,) and demonstrated with difficulty.

When the tubercles are situated immediately under the peritoneal coat of the liver, they frequently present (particularly when they have attained the size of a filbert,) depressions in their centres.

The consistence of the tubercles varies from thin pap or thick mucilage to soft cartilage. Their colour also varies: in some cases they are quite white; in others yellow, or venous red, or even black; some-

times, from the presence of the colloid form, semi-transparent. The same tubercle, if large, frequently presents all these different varieties of colour.

POSITION OF THE DISEASE.

Some parts of the stomach are much more liable than others to the disease. Thus, in eighty-two cases, the pylorus or its extremity was affected in thirty-eight; in sixteen of these the pyloric opening was more or less contracted; the stomach was affected generally, *i.e.* both the anterior and posterior walls, in a greater or less degree in eleven; the lesser curvature in ten, the great extremity in nine, the great curvature in eight, and the cardia in five.

Lebert gives the following table of the seat of the disease in 102 cases observed by Louis, Dietrich, and himself:—

		Lebert.	Louis.	Dietrich.
1. The pylorus	The pylorus alone	18 times		
	The pylorus and lesser curvature	9 "		
	The pylorus and the adjacent parts	5 "		
	The pylorus, the lesser curvature, and the great extremity	1 "		
	The pylorus and the duodenum	1 "		
		34	9	16
2. The lesser curvature		7	6	4
3. The cardia		5	0	3
4. The anterior and posterior aspect		5	0	0
5. The posterior aspect		3	0	0
6. The great curvature		2	0	0
7. The whole of the stomach		1	0	0
8. Different parts		0	4	3
		57	19	26

IMPLICATION OF OTHER ORGANS.

The implication of other organs is a peculiar feature of cancer, and one which may be said to distinguish it from any other disease of the stomach likely to be confounded with it. This implication may take place in two ways: 1st, *directly*, from contact; 2nd, *indirectly* or *secondarily*, from the cancer germs being conveyed to the organs by the blood or absorbent vessels. It may be sometimes developed simultaneously, but this does not seem to take place very frequently. I have met with one case where the stomach and the breast were affected. It is sometimes difficult to determine whether the disease is secondary or simultaneous. It may be, I think, assumed as a rule, that squirrroid cancer never excites secondary deposits until softening commences; therefore, whenever it is met with in two distinct parts, or in the non-softened state with the encephaloid form (a rare complication), the formations are distinct. In the encephaloid form, the tendency to secondary formations is strongly marked and takes place very soon after the disease is developed.

The above results are of value in connection with operations, as they tend to show how far secondary formations are liable to occur in connection with the two forms of cancer.

The liver, of all the organs, from its being so intimately connected with the stomach by its position and by the vascular system, is more liable than any other,

to become affected, both *directly* and *secondarily*. It was affected in thirty-eight out of eighty-two cases; in seven of the number directly, in the remaining thirty-one secondarily. In two of the cases where the organ was directly affected, abscesses were found: in one several existed, of the size of walnuts; in the other, a large one of the size of an orange.

In four of the other cases when the organ was directly affected, ulceration—and, from the contact of food and liquids more or less disorganization, existed.

The walls of the gall bladder were sometimes affected, but it was *directly* from contact with a diseased part of the liver or stomach.

The position of the disease in the stomach seems to exert some influence on the frequency with which the liver becomes affected.

It was affected in—

22 out of the 38 cases when the pyloric half was affected.

7	„	10 cases when the lesser curvature	„	„
2	„	5 cases when the cardia	„	„
2	„	8 cases when the great curvature	„	„
1	„	9 cases when the great extremity	„	„
2	„	11 cases when the stomach was generally	„	„

The pancreas seems to be the next organ most frequently implicated. Although its state was not generally noticed, yet whenever the posterior wall of the stomach was affected, it was generally implicated either directly or secondarily; the first most frequently.

The lungs were affected in ten of the eighty-two cases; the diaphragm was affected directly in three

of these cases. The cancer in six of the cases was situated on or near the lesser curvature of the stomach; in two of the others near the cardia.

The diaphragm, when affected, became so from direct contact; but its subserous cellular tissue was sometimes implicated, particularly in the cases where the walls of the abdomen were affected.

The great omentum and the mesentery were affected in fifteen cases. In ten of these the walls of the abdomen were also implicated.

The lesser omentum was frequently affected when the liver was the seat of the disease.

The duodenum was implicated in eight of the thirty-eight cases when the pylorus was affected.

The transverse arch of the colon was affected in three of the eight cases when the disease was seated on the great curvature. In one of them, a communication existed between the organs. The disease in this case was squirrroid.

The spleen was affected in only two of the eighty-two cases. In one, it contained a single large encephaloid tubercle. In the other, the great extremity of the stomach was affected. The organ, in this case, adhered closely to the stomach: the adhesions and the surface of the organ contained cancerous deposits.

The lymphatic glands in the immediate vicinity of the stomach rarely escaped contamination. The bronchial glands were also frequently affected, particularly when the secondary contamination was extensive.

The bones were only noticed as being affected in two of the eighty-two cases. In these, the existence of the disease would have been passed over, if fracture had not occurred.

Chardel mentions a case where the body of one of the vertebræ was softened, and Cayol another, where the dorsal vertebræ were destroyed. Dietrich* found the periosteum of one of the lumbar vertebræ affected.

The state of the kidneys, uterus, and other organs, was not sufficiently noticed, in the cases which I have collected from other observers, to enable me to give any definite results as to their relative frequency of liability.

In the twenty cases which have fallen under my own notice: in two, where the peritoneal membrane, the omentum, and the mesentery were affected, the surface of the kidney was implicated. In another case, one of the kidneys was enlarged, and three-fourths of it was in a state of cancerous degeneration. In another case, the surface of the ovaries, the fallopian tubes, and the uterus were affected: the last organ, in addition to the implication of its peritoneal covering, contained in its walls two encephaloid masses of the size of walnuts.

Dietrich* has observed two rare complications. One was implication of the anterior wall of the rectum: the other of the ileo-cæcal valve, mesentery, bronchial glands, ovaries, and fallopian tubes.

* Cited by Lebert.

† Lebert.

The pneumo-gastric nerves sometimes become affected. Both Cruveilheir and Prus mention an instance.

SIZE OF THE STOMACH.

When any impediment to the passage of the food from the stomach into the duodenum exists, dilatation, from the constant distension kept up by the presence of food in it, will take place. But to induce dilatation, it is necessary that the obstruction should be of some standing ; hence, it is far less frequently met with in cancer, than in chronic disease of the pylorus. In none of the cases of cancer which have fallen under my notice was it dilated to any great extent, save in one instance, where it had been of some standing ; but even in this instance the dilatation seemed to arise from some obstruction at the pylorus, previous to the development of the cancer.

Diminution of its capacity is of much more frequent occurrence. This may take place when some obstruction to the introduction of foods exists at the cardia : fluids forming the sole sustenance, atrophy of the part, unaffected with disease being induced ; or from the extension of the disease, its cavity becomes narrowed. In the last cases, the stomach, on opening the abdomen, will appear of its natural size ; but on cutting into it, from thickening of its walls, its cavity will be so reduced, as not to be capable of holding more than eight or twelve ounces of fluid.

This gradual diminution of the cavity of the stomach was particularly marked in one case. The

patient, when he first fell under my notice, could take a pint of arrowroot or gruel without inconvenience; but for a week or two before death, not more than a teacupful could be taken. In a case mentioned by Dietrich, which occurred in the Prague Hospital, the stomach was found after death so compressed by encephaloid masses developed on its anterior wall, that its cavity was not larger than an orange: the cardia and duodenum were placed on the same line; the pylorus had disappeared.

SYMPTOMS.

The symptoms will present some diversity, according to the form of the disease, whether *squirrroid* or *encephaloid*: its position—whether at the *cardiac* or the *pyloric opening*, or in the *centre of the organ*: and its stage—whether *non-ulcerative* or *ulcerative*.

The development of the disease is frequently preceded by symptoms of chronic gastritis, gastrodynia, or great feebleness of digestion; sometimes by simple dyspepsia, for months, or even years. These symptoms seem more liable to precede the squirrroid than the encephaloid form.

1st. As it affects the pylorus.—In the *non-ulcerative stage of the squirrroid form*.—Pain, sometimes severe, or a feeling of uneasiness, more or less marked, accompanied by some amount of tenderness on pressure, is first experienced in the right side of the epigastrium, in the immediate vicinity of the margins of the cartilages of the false ribs.

In some cases the pain is constant, generally increased during digestion : in a few instances it is worse when the stomach is empty ; sometimes it is only felt during these times. In females it is generally worse before or during the menstrual period ; or, if this discharge has ceased, at the times when it used to occur.

With these symptoms there is tumefaction, seldom very large in this form, or increasing very rapidly in size. The digestion is troubled, and food generally excites a sense of uneasiness, constriction or fulness ; and there is much flatulence, heartburn, and discharge of watery fluid in considerable quantities, either of an acid or an insipid character, occurring after food or early in the morning. As the disease progresses, vomiting sets in, either from irritation of the mucous membrane of the stomach, or from obstruction of the pyloric opening. The period of its occurrence varies very much : in some cases it occurs early in the disease, in others not for some time—perhaps not until ulceration sets in, if the opening is not greatly obstructed.

The matters vomited consists of food in a more or less digested state, mixed, if much irritation exists, with acid and watery fluid, the last separating on its being allowed to stand, and sometimes forming from three-fourths to five-sixths of the whole. When the vomiting occurs while the stomach is empty, particularly the first thing in the morning, the vomited matters often consist of mucous more or less viscid ;

sometimes followed, if the retching continues, by watery fluid : sometimes the last only is rejected, insipid, or acid and bilious, from the admixture of gastric juice or bile. The patient emaciates perceptibly, although much slower in this form than in the encephaloid ; the debility is generally extreme ; the mind incapable of much application ; the face assumes the peculiar earthy, leaden, or dirty-white aspect of cancer, and the eyes become either dull, heavy and muddy, or clear and brilliant. The pulse is generally small and feeble ; the skin harsh, dry, and cold ; the tongue white and flabby, unless the gastric symptoms are severe, then it is often red and glazed, streaked with white or brown fur, the papillæ more or less prominent. The appetite is generally very bad, but sometimes, when the vomiting is severe, it is ravenous ; the thirst is generally severe, particularly if the vomiting or the gastric disturbance is great ; in most cases there is an intense desire for cool drinks. In the later part of this stage, the feet and the abdomen frequently swell, from the collection of serum ; but it is seldom so marked as in the encephaloid form, from its depending more upon debility than upon pressure on the vessels or irritation of the peritoneum.

In the *non-ulcerative stage of the encephaloid form*. —There is sometimes no pain, or it occurs only occasionally, and lancinating in character ; the attention of the patient being first directed to the part by a feeling of uneasiness and fulness, which will

be found, on examination, to arise from the presence of a tumour, in some cases easily defined, in others with difficulty—touch and careful percussion alone enabling the practitioner to distinguish the existence of hardness, irregularity and dulness. In some cases, on the other hand, the pain is very severe, more or less constant, and of a dull, boring, or lancinating nature. The growth of the enlargement is generally very rapid, in some cases more than in others. The digestion is more or less troubled, but rarely to the same extent as in the squirrroid form. Vomiting sometimes exists, sometimes it does not; the state of the pyloric opening influencing its occurrence. If it remains sufficiently open to admit of the passage of the food, it may not take place, unless irritation of the mucous membrane exists, until the disease ulcerates. The matters vomited generally consist of food, in a more or less digested state, mixed with mucus; or they consist solely of either one or the other, occasionally tinged with blood. The emaciation is generally marked, and it increases rapidly; but the debility, even when the emaciation is slight, is always extreme, and the patient in the course of a few weeks often ceases to be able to get about. The face rapidly assumes an anxious expression, and the peculiar aspect of cancer. The pulse is generally small and feeble—the skin harsh and dry; but towards night the first is often quickened, and the last becomes hot. The tongue is sometimes natural, sometimes redder than in health, or white and flabby.

The appetite is generally bad, and, by carefully watching, a marked diminution will be observed to take place in the quantity of food which can be taken without exciting feelings of distension, from the cavity of the stomach becoming contracted by the encroachment of the disease. I have already alluded to a case where, in the course of a few weeks, the patient, from taking a pint of arrowroot, ceased to be able to take more than a teacupful without great inconvenience. The feet become dropsical early in the course of this form, particularly if it is extensive; the abdomen the same, sometimes before the feet — either from the occurrence of secondary formations in the liver, on the abdominal walls, in the omentum or mesentery. Cough generally occurs in the course of this stage, either from irritation of the mucous membrane of the bronchia, from the formation of secondary deposits in the lungs, or from implication of the bronchial glands. Effusion into the cavity of one or both pleuras often takes place, sometimes slowly and imperceptibly, sometimes rapidly and accompanied by pain of a pleuritic character.

Of the ulcerative stage.—In both the squirrroid and the encephaloid forms, the symptoms which mark the occurrence of ulceration are the same. The food and other matters vomited assume a brown or a chocolate tinge, from the admixture of blood more or less altered by the action of the gastric juice, and a fluid, like coffee or coffee-grounds, is also brought

up, particularly the first thing in the morning, or when the stomach is empty. In these shreds or portions of cancerous tissue, or cancer cells, can, by the aid of the microscope, be detected. The evacuations from the bowels undergo a change—they become dark coloured, sometimes mixed with pure blood; sometimes the coffee-coloured fluid is passed. In the absence of vomiting, which may subside, if it has existed in the first stage, from the opening of the pylorus becoming free, cancer masses or cells are to be looked for in the evacuations, particularly in the coffee-coloured fluid. The emaciation and debility increase very rapidly; hectic fever sets in, or if it has appeared in the first stage it becomes more marked; the dropsical effusions the same. Death generally ensues gradually, from exhaustion, sometimes suddenly, from the loss of a small quantity of blood, or from the occurrence of perforation, and the escape of some of the contents of the stomach into the cavity of the peritoneum—death ensuing immediately, or in a short time, from the shock, if the quantity which escapes is large, or the patient much reduced in flesh and nervous power by previous suffering; but sometimes, when the quantity effused is small, and it has taken place slowly, peritoneal abscesses form, and death may not take place for days, sometimes not for weeks.

2. *As it affects the centre of the stomach.*—Pain or uneasiness exists in the centre of the epigastrium, more or less increased during digestion, before or

during menstruation, or, if it has ceased, during the time it used to exist and by pressure; fulness and tumefaction are but little marked, often even absent, in the squirrroid form, particularly if the posterior wall of the stomach is the seat of the disease; but pronounced and increasing, often rapidly, in the encephaloid form. The appetite is generally bad; the digestion more or less troubled, and food excites flatulence, acid eructations and heartburn; but vomiting is frequently absent, particularly in the encephaloid form, until after ulceration sets in, unless obstruction exists at the pyloric opening, or there is irritation of the mucous membrane—then it may be severe.

The absence of vomiting does not seem to retard materially the progress of the disease; for ulceration sooner or later sets in, and the motions and vomited matters assume the states already described.

When the disease is seated here, cases, particularly of the encephaloid form, are sometimes observed, where there is neither pain nor vomiting and but little disorder of the digestive organs. There is, however, tumefaction of the epigastrium, which enlarges and extends, often rapidly; extreme and rapidly increasing debility and emaciation; loss of appetite; and, from the cavity of the stomach diminishing in size, the containing power of the organ also diminishes, and it soon ceases to be able to receive more than a small quantity of aliment without a feeling of distension being excited; the cancerous aspect is strongly

marked, and anasarca, or ascites, and secondary or direct implication of other organs, ensue.

3. *As it affects the Cardia.*—This part of the stomach is but rarely affected. In some cases the disease commences in the walls of the cardiac opening; but more frequently it extends to them from the lesser curvature or some other part of the organ, or the opening becomes obstructed, from an appendage of one of the tumours blocking it up.

When the disease commences at or near the cardiac orifice, pain or a feeling of uneasiness is generally first experienced, with tension, fulness, and some degree of tenderness on pressure in the immediate vicinity of the ensiform cartilage, followed, or perhaps accompanied, by a feeling of obstruction in swallowing, particularly if a large mouthful of food is swallowed without being thoroughly masticated; later, as the opening contracts, portions of food are very apt to be arrested, and the introduction of food into the stomach prevented for hours, sometimes for days, and at length liquids alone pass; sometimes even these do so very slowly, and in a small stream.

When the obstruction has been of some duration, the œsophagus dilates and acquires two or three times its natural bulk. This takes place in a marked degree, however, only when the patient continues to swallow solid food, which remains down for some time, and undergoes a kind of digestive process, which in some cases enables it to pass slowly into the

stomach ; but in most cases it is returned by regurgitation, mixed with a large quantity of mucus. The latter is generally secreted by the pharynx and œsophagus, and it is either being constantly brought up in small quantities, or from two to four teacupfuls are regurgitated up the first thing in the morning, or when food has not been taken for some time ; and large quantities are often passed with the motions. In some cases the lower part of the œsophagus is in such a state of irritation—and this is often induced by the attempts made to pass an instrument to relieve the obstruction—that food no sooner arrives at its lower part than it is immediately returned by an inverted action of the organ, often accompanied by severe retching. The emaciation and debility are extreme—the appetite often craving—the thirst intense—the bowels confined—the evacuations scanty, and passed at long intervals. From the pressure which the enlarged œsophagus exerts on the lungs, the breathing is often very difficult, particularly after food and on exertion ; the voice is generally hoarse, and cough exists, from irritation, produced by the incessant contact of the fluid regurgitated on the upper part of the larynx.

The *ulcerative* stage is marked by the admixture of blood or sanguinous matter with the food and the mucus rejected : sometimes by the passage into the stomach becoming free ; often by the occurrence of vomiting or diarrhœa, in consequence of the irritation which

the sainous discharge excites on the mucous membrane of the stomach and bowels.

Abscesses are very apt to form in the lungs, from the œsophagus ulcerating, food being effused into their substance ; sometimes a direct communication forms between the œsophagus and the trachea, or one of the bronchial tubes, food and drink being coughed up ; sometimes the ulcers open into one or other of the pleural cavities, food being effused into them. Serous collections in the pleural cavities, sometimes in the pericardium, are of constant occurrence. When the cardiac opening becomes affected from cancer of some other parts of the organ, generally of the lesser curvature on the right of the great tremity, the obstruction is rarely complete or of long duration, unless it occurs very early in the disease.

Sometimes the obstruction is due to the formation of one or more secondary tubercles ; sometimes, when a tumour exists, to its blocking up or being driven against the opening when the patient is in certain positions, or when the stomach is empty.

TERMINATIONS AND COMPLICATIONS.

The termination was invariably fatal in all the cases I have collected and observed.

In about one-half of the cases, death ensued from exhaustion induced either by vomiting or by diarrhœa ; sometimes the two combined. The first was excited by narrowing of the pylorus, chronic inflam-

mation of the mucous membrane occurring in connection with the disease, or from the irritation which the discharge poured out by the ulcerated surface excited. The second, from the irritation which the fluid poured out by the ulcer, sometimes by the food which the open state of the pylorus when ulceration had set in allowed to pass ; sometimes from the occurrence of simple ulceration or cancer in some part of their course ; the duodenum and the transverse arch of the colon being the parts most susceptible.

In a second set of cases, the disease had a great tendency to terminate in perforation of the stomach. Even in these cases it occurred after vomiting or diarrhœa had existed for some time, ulceration being necessary for its occurrence. Death, when this ensued, sometimes occurred immediately from the shock ; sometimes not for days, from the fluid which was generally present in the peritoneal cavity lessening the severity of the shock at the onset, and the intensity of the inflammation which subsequently followed.

General peritonitis was more frequently observed than peritoneal abscesses. The last, when observed, were invariably small, and seemed to occur more frequently as a result of adhesions formed before the perforation ensued, than subsequently.

In a third set of cases, the fatal termination ensued from the disease alone. In these, in some instances, the health had been previously enfeebled by disease or hardship ; in others, it occurred solely

from the disease being very extensive, or from secondary formations occurring in several organs at the same time. Diarrhœa or vomiting, in consequence of ulceration, was frequently observed towards the close of these cases, and often caused the disease to terminate fatally in a few days after either had occurred.

In a fourth set of cases, the fatal termination ensued, or was hastened, by disease within the chest. The most frequent diseases observed were chronic pleuritis, hydrothorax, being the result, chronic pneumonia either from secondary formations in the lungs, or from primary cancer when the diaphragm was directly implicated. In implication of the diaphragm, abscesses often formed in the lungs. In disease of the cardia, or the lower part of the œsophagus, perforation of the walls of the latter, followed by the escape of its contents into the cavity of the pleura, frequently occurred, as also did abscess of the lungs and communications with the trachea and bronchia.

In a fifth set of cases, the fatal termination was hastened or induced by hemorrhage, from the ulcers penetrating large vessels, death ensuing in a short time; or from the repeated occurrence of small bleedings. If the patient's strength had been much reduced, the loss of a small quantity of blood, particularly if it occurred repeatedly and within a short time, was often sufficient to cause death. The blood was not always vomited up or passed from the bowels

as soon as it was poured out; but frequently accumulated in the stomach or the intestines.

The following table will show the terminations and complications of eighty-eight fatal cases:—

In	12	from vomiting alone.
„	11	„ diarrhœa alone.
„	14	„ vomiting and diarrhœa.
„	9	„ peritonitis consequent on perforation.
„	4	„ peritoneal abscess.
„	9	„ the extensive nature of the disease, or from its occurring in persons enfeebled by previous disease, hardship, or mode of living.
„	8	„ hemorrhage, in 6 from the stomach, and in 2 from the bowels.
„	7	„ being complicated with hydrothorax. Vomiting or diarrhœa, sometimes both, generally existed.
„	4	„ abscess of the lungs.
„	3	„ pneumonia, from secondary or primary cancer.
„	1	„ phthisis.
„	1	„ softening of the spinal cord and sloughing of the sacrum.
„	3	„ disease of the brain or its membranes, 1 from acute meningitis, 1 chronic, 1 cancerous tumour, with softening of the brain.
„	2	„ the cancer making its way through the abdominal walls, abscess being excited, which, when opened, was followed by fungus. The patients sank, exhausted by hemorrhage and the discharge.

DURATION.

An insurmountable difficulty often exists in separating cancer from the pre-existing chronic gastritis, gastrodynia, or disordered digestion; for they are often so intimately blended, that the first is fre-

quently not suspected until a tumour is discovered or vomiting sets in, and the face assumes the peculiar aspect of the disease.

The duration of the disease is extremely variable. Much seems to depend on the previous state of the patient's health—age—the form of the disease, whether squirrroid or encephaloid—its position—extent—the occurrence of secondary disease in other organs—the treatment adopted, and the mode of living. If the health has been previously much reduced by disease or hardship, the disease is generally rapid in its course: in the young and robust, particularly in the encephaloid form, the disease is generally of short duration. This seemed to arise in the last from its being generally of an active character, and from the rapidity with which secondary formations ensued.

The encephaloid form is almost invariably more rapid in its progress than the squirrroid, particularly in the non-ulcerative stage; but when ulceration has set in, the one form seems to be nearly as rapidly fatal as the other. The frequent occurrence of perforation in the squirrroid form seems to exert some influence in rendering it sooner fatal than it otherwise would be. In both forms, when once ulceration has set in the fatal termination was invariably hastened; from the severe drain on the system by the copious discharge, sometimes assisted by the occurrence of chronic gastritis and chronic enteritis excited by the discharge, softening of the stomach, hemorrhage,

from the ulceration opening a blood-vessel, or from perforation of the walls of the stomach.

In disease of the cardiac opening, the duration of the cases ranged from three to sixteen months. Of six cases: in one, death ensued in three months; in two, in six months; in one, in eight months; in one, in ten months; and in one in sixteen months.

In disease of the centre of the organ, the duration ranged from three to thirty-six months; in the majority of the cases from six to eighteen months—longer in the squirrroid than in the encephaloid form.

In disease of the pylorus and its immediate vicinity, the duration ranged from two to twenty-four months; in the majority of the cases from three to twelve months.

The employment of a stimulating plan of treatment, the use of stimulating drinks, and free living, invariably accelerated the fatal termination, by hastening ulceration.

The following table will shew the duration of eighty-three cases, twenty-seven of which were squirrroid, and fifty-six encephaloid. From this it seems that the disease has a greater tendency to prove fatal within the first twelve months than at any other period; for fifty-two of the eighty-three cases terminated within this time: all the cases, with the exception of five, were of the encephaloid form. The squirrroid form seems rarely to prove fatal before twelve months; in the case which terminated within six months, the patient died from perforation. The

period when this form has the greatest tendency to terminate fatally, appears to be from the ninth to the twenty-first month.

Of the fifteen cases which did not terminate until more than twenty-one months had elapsed twelve were squirrroid.

				Encephaloid.	Squirrroid.
6	cases	proved	fatal in 2 months	6	0
9	"	"	3 "	9	0
15	"	"	6 "	14	1
12	"	"	9 "	11	1
10	"	"	12 "	7	3
6	"	"	15 "	2	4
5	"	"	18 "	2	4
5	"	"	21 "	2	2
4	"	"	24 "	2	2
4	"	"	27 "	1	3
3	"	"	30 "	0	3
2	"	"	33 "	0	2
2	"	"	36 "	0	2
<hr/>				<hr/>	<hr/>
83	cases			56	27

TERMINATION IN CURE.

Instances are not wanting where cancer of the breast has been cured spontaneously, either by the cancer sloughing out, or by the disease becoming dormant. The same results may ensue in cancer of the stomach, although the probability of their occurrence is very small. In the encephaloid form from

its great vascularity, compared with the squirrroid, and the rapidity with which secondary formations ensue, we should think it impossible to take place, particularly when it has once acquired the magnitude of a large walnut. In the squirrroid form, the small degree of vascularity which it possesses, seems to favour its becoming dormant in the early part of the non-ulcerative stage, and the smallness of its size may assist its sloughing away in the ulcerative one,—although perforation of the walls of the stomach, or the implication of an adjacent organ, is very apt to ensue before it can take place.

Lebert remarks, “I am inclined to pronounce in favour of such a possibility, more from the observation of certain facts than from theoretical reasons.

“We found, in one instance, an ulcer in the region of the pylorus, covered with a kind of thin pellicle; however, the cancerous tissue existed below and around it. In another instance, an excavated cicatrized ulcer was found on the lesser curvature adherent to the liver; recent cancerous masses existed at the cardia.”

“Lately we have observed an instance where a cancerous ulcer was completely cicatrized.”

1. “At the after death examination of a man twenty-seven years of age,* the pylorus was found squirrroid, and its opening narrowed, with implication of the lymphatic glands along the vertebral column.

* Dietrich “Prage Vierteljahrschrift, 1845.” band iii. 116 ; band iv. 101, and 102. Cited by Lebert.

A cicatrized cancerous ulcer existed, occupying greater part of the circumference of the pylorus, its bottom was smooth, of a grey colour, covered by a thin membrane, firm, and of a greyish-white colour."

2. "In the stomach of a female, twenty-four years of age, a triangular excavation was found, its borders hard and callous, deeply undermined in places. Its bottom was completely cicatrized, covered with a grey cellulo-fibrous tissue, smooth and firm, and formed with the pancreas, thickened, the posterior wall of the ulcer. The bottom of the ulcer was raised by little recent cancerous tumours, varying in volume from a pea to a lentil. The borders of the ulcer towards the pylorus presented an infiltration of crude cancerous matter, commencing to soften."

3. "In the body of a professor of gymnastics, aged sixty-five, who, for the last fifteen years of his life, had suffered from disease of the stomach, and had at different times vomited blood, a depression was found in the vicinity of the pylorus, covered by a membrane, the borders of which were infiltrated with encephaloid tissue of recent formation. The surrounding lymphatic glands presented the same change. The pylorus and the cardia, from the contraction of the lesser curvature, were not more than one inch and a-half apart.

"The epiploon and the glands around the pancreas adhered to that part of the stomach which corresponded to the cicatrix; they were infiltrated with encephaloid tissue.

“He had vomited blood seven days before death. In one of the borders of the ulcer, infiltrated with cancer, an ulcerated artery half-a-line in diameter was found; another existed nearly on the point of being opened.”

Louyer Vélleméy* mentions two instances of persons who became affected with symptoms of cancer, yet got well :—

1. “A man, aged forty, while labouring under profound grief, began to suffer from shooting pain, with weight in the epigastrium; his strength diminished, and he vomited daily after meals. He got well in a month.”

2. “A man, aged twenty-two, was taken with symptoms like the last case; the matter ejected was of a dark colour. By the use of blisters and other remedies he was cured.”

These cases do not, I think, deserve the name of cancer.

DIAGNOSIS OF CANCER, FROM CHRONIC GASTRITIS—ULCERATIVE GASTRITIS, AND CHRONIC INFLAMMATION (INDURATION AND NARROWING) OF THE PYLORUS.

I. *In Cancer.*

I. *In Chronic Gastritis.*

(*Non-ulcerative stage.*)

<p>1. Males are more liable than females, and the liability is most marked in the middle and later periods of life.</p>	<p>1. Females are more liable than males, and the liability is most marked in early life.</p>
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* Cited in Cyclop. of Pract. Med., art. Cancer.

2. Pain may not be severe—it may be absent; a feeling of weight alone existing, increased by taking food. Acidity, acid or watery eructations, nausea and vomiting, are far from being constantly observed, unless much irritation of the mucous membrane of the stomach or obstruction at the pylorus exists. Lancinating pains occur frequently, either just before the menstrual period, or, if this discharge has ceased, at the times it should occur.

3. Tumefaction, constant and increasing, often rapidly, in the encephaloid form. In the squirrroid form, particularly if the posterior wall of the stomach is its seat, its existence is determined with difficulty.

4. Aspect of face invariably affected. It is of an earthy, yellow,

2. Pain exists in the epigastrium, more or less constant, invariably increased by food, some kinds more than others. There is also acidity, acid or watery eructations, thirst, nausea and frequent vomiting, with tenderness on pressure. Spasms are very apt to occur, particularly just before the menstrual discharge appears, or after eating indigestible food.

3. Tumefaction, none.

4. Aspect of face rarely affected, unless the disease has been of long standing

brown or leaden tinge ; and accompanied with sometimes of a dead severe vomiting, then it white, particularly in the becomes pallid ; but the encephaloid form, when pallor is the kind observed it is rapidly developed. when the system is not sufficiently nourished, and it is accompanied by marked emaciation of the body. Emaciation is not so strongly marked as the In some cases the skin is of a yellow tinge, when any obstruction exists to the introduction of bile into the duodenum. The feebleness, which is often extreme ; both are rapidly developed and increasing, particularly in the encephaloid form. The appetite is generally very bad. The emaciation and debility are slowly formed : the size of the cavity of the first is generally more marked than the last. and with it the containing power of the organ The appetite is generally lessens ; so that the patient, from having been able to take a full meal, cannot take a teacupful of fluid without feeling oppressed. ravenous.

5. The symptoms, when once formed, continue to increase, more slowly in some cases than in others.

5. The symptoms, from some slight cause, often undergo a marked improvement.

6. Dropsy of the legs, abdomen, and sometimes of the chest, are frequently observed.

7. The disease tends to end fatally soon; in the majority of cases within twelve months: it is seldom, if ever, prolonged beyond three years.

6. Dropsy of the legs or abdomen rarely occurs.

7. The disease lasts for years.

II. *In Cancer.*

(*Ulcerative stage.*)

1. Vomiting sometimes present, sometimes not. When it does exist, the matters brought up assume a brown or chocolate tinge: a fluid like coffee is constantly vomited. The motions assume the same colour as the vomited matters. The tinging of the evacuations and the vomiting of the coffee-coloured fluid rarely ceases, at least materially, when once it sets in.

II. *In Ulcerative Gastritis.*

1. Vomiting frequent, particularly after food; the matters brought up and the motions from the admixture of blood, more or less altered by the action of the gastric juice, brown or chocolate-coloured; sometimes when the stomach is empty, a coffee-coloured fluid is brought up. The tinging of the evacuations and the vomiting of coffee-coloured fluid is not constant, unless the liver is ulcerated.

2. Diarrhœa, constant;
in the absence of vomit-
ing it always exists; fre-
quently both exist.

3. Tumefaction, con-
stant.

4. Cancerous aspect al-
ways marked.

5. Dropsy, frequent.

6. Secondary forma-
tions in the liver, omen-
tum, on the walls of the
abdomen, and in the
lungs, frequent.

7. Cancerous masses
and cells in the fluids
vomited and evacuated
from the bowels, *constant*.

2. Diarrhœa, rare.

3. Tumefaction, *none*.

4. Cancerous aspect,
none: the face may as-
sume a bilious tinge; it is
generally pallid.

5. Dropsy, seldom.

6. Secondary forma-
tions never occur.

7. Cancerous masses
and cells in the evacua-
tions, *never*.

III. *Cancer of the Pylorus.*

1. Sometimes it is pre-
ceded by symptoms of
chronic gastritis, feeble
digestion or gastrodynia,
particularly in the squir-
rhoid form.

III. *Chronic Inflammation of the Pylorus.*

(*induration and narrowing.*)

1. It is generally pre-
ceded for some time by
marked symptoms of
chronic gastritis.

2. Vomiting is generally constant, at least as soon as the passage of food from the stomach into the duodenum is prevented. The vomiting, when once it has set in, rarely diminishes materially, or for any length of time.

3. Enlargement of the pylorus can be felt : it acquires a large size, particularly in the encephaloid form. Its growth is generally rapid, and it never decreases.

4. Ulceration ensues nearly always ; the matters vomited and the motions assume a brown or chocolate hue.

2. Vomiting is constant, and occurs in from one to three hours after food is taken : sometimes frequent ; sometimes only once in twenty-four or thirty-six hours. The vomited matters are generally mixed with a large quantity of watery fluid. The vomiting and the gastric symptoms often diminish.

3. Enlargement of the pylorus can be felt, but it rarely acquires a large size. Its growth is very slow, months or even years elapsing without its undergoing any increase. It may even decrease if the vomiting diminishes.

4. Ulceration sometimes takes place in the tumour or in the stomach, and blood is poured out, sometimes without ulceration ; the vomited matters and the motions assume a brown or chocolate hue.

- | | |
|--|---|
| 5. Cancer cells constant
in the matters evacuated. | 5. Cancer cells absent. |
| 6. The aspect is that
peculiar to cancer. | 6. The aspect is that of
a person suffering from
want: sometimes the face
is of a yellow tinge. |
| 7. The disease is of
short duration: in the
majority of cases death
ensues within twelve
months. | 7. The disease is gene-
rally of long duration, and
by appropriate treatment
life may be prolonged for
years. |

OTHER DISEASES LIKELY TO BE CONFOUNDED WITH
CANCER.

The cases most frequently met with, and which bear a close resemblance to cancer, are those in which collections of fæces take place in the transverse arch of the colon. The opinion that the case is one of cancer is often strengthened by the vomiting which exists after eating, and the yellow tinge of the skin, produced by the obstruction which exists to the free entrance of the bile into the duodenum.

“A female* entered Pinel’s ward, with a circumscribed lobulated tumour in the epigastrium. She vomited bilious matter, and the tumour was the seat of lancinating pain. He diagnosed cancer of the stomach. But she had never been ill, or had even suffered from disordered digestion. The tumour was

* Rostan : Cours de Clinique.

very moveable and not tender to the touch. We suspected that it was a collection of stercoraceous matter, which often takes place in old people. Under the use of purgatives it soon disappeared."

"When *Chef de Clinique* at *la Salpêtrière*, an old woman entered, emaciated and with the limbs œdematous. She had a tumour in the epigastrium, with vomiting of bilious, sometimes glairy, matter. She left the hospital at the end of six months. Some time afterwards she returned; the tumour and also the vomiting had disappeared, and soon died."

"The stomach was found quite healthy."

In some cases, the great omentum rolls up in such a manner, that it forms a more or less globular tumour immediately in contact with the under part of the stomach; when this occurs in connection with chronic gastritis, it is very likely to lead to the supposition that cancer exists.

TREATMENT.

There are few medicines which have not, at one time or the other, enjoyed a reputation for curing cancer. The preparations of mercury, arsenic, iron, gold, silver, iodine and bromine, have in turn been considered as specifics, but unfortunately without foundation. The different preparations of opium, the extracts of belladonna, henbane and conium, (the last in particular), have also enjoyed a greater or lesser reputation in this disease, and they have, to a certain extent, retained it; not because they possess any

specific power over the disease, but because they relieve the pain which it excites in its growth.

The followers of Broussais, under the idea that cancer is an inflammatory disease, consider that the repeated application of a considerable number of leeches is a specific. In the few cases which it has been my chance to see treated, on the continent, in this manner, the fatal result was hastened by the debility which the loss of blood induced.

The remedy required in this disease is one which possesses a specific power over the cancer germs, either capable of destroying them or rendering them dormant. As the *Materia Medica* contains no such agent, recourse must be had to such measures as will keep the disease quiescent as long as possible, and allay pain when it occurs. Diet must be placed in the first rank. It should consist of those articles which require but little or no digestion, yet at the same time yield a large amount of nourishment: milk, of all substances, possesses these advantages, and it should, with bread,* form the sole nourishment.

The quantity of milk taken at a time must be

* It should be made from the *finest* flour, and without salt. Bakers' bread is made from "*second*" flour, and a considerable quantity of alum is frequently used to give it a white appearance. From these reasons, the nutritive value of bakers' bread is from ten to fifteen per cent. less than that made from the *best* flour, and the alum and salt which it contains often renders it very injurious. Pure bread cannot be always insured, unless the grain is ground at home.

regulated, so as not to excite distension. It is best taken cold, with or without sugar. When the vomiting is troublesome, or much heat exists in the stomach, it may be iced, with great relief to these symptoms.

When there is much acidity, it is apt to disagree ; in these cases, the admixture of one-eighth of lime-water for a few days will prevent this. The quantity of milk necessary to be taken during twenty-four hours will depend, in a great measure, on the appetite : some patients are well-nourished on three pints, with eight ounces of bread, two ounces of sugar, and two ounces of butter ; while others require from four to five pints, with from twelve to sixteen ounces of bread—butter and sugar in proportion. In some cases, where the demand for nourishment is great, it is advisable to take one, two, or three raw eggs, beaten up with the milk, in the course of the twenty-four hours ; but when the milk nourishes sufficiently, it alone should be taken. In some cases, beef or mutton tea is necessary ; but salt and spices should be excluded. If either of these excite uneasiness in the stomach, they must be thrown up as glisters : when the irritability of the stomach is very great, all nourishment should be introduced into the system in this manner ; that taken by the mouth being confined to a few teaspoonsful at a time of iced milk and plain water.

In one case, which fell under my observation, life was prolonged for some months by these means.

Wine, beer, and spirits, must be strictly abstained from.

It is, no doubt, very irksome to patients to be confined to one kind of diet ; but its irksomeness is slight compared with the advantages which it yields. If persons suffering from this disease are really anxious to prolong life and lessen pain, they will not for a moment hesitate to follow it ; particularly if they bear in mind that the disease, fatal as it generally is, *may perhaps, if it is had recourse to in the first stage, be cured by it.*

The due action of the kidneys, skin and bowels, must be carefully attended to. The due performance of the functions of the first should be encouraged, by drinking only the softest water ; if it has the slightest tendency to hardness, it should be boiled, or distilled water should be drank : while the action of the second should be kept up by sponging the body with tepid or cold water every morning, afterwards rubbing it well with a coarse towel or flesh-brush for a few minutes, until a glow is produced : that of the bowels should be regulated by acquiring a habit of going every day, at a certain time, to the water-closet. If this should fail to keep them regular, an enema of soap and water should be thrown up ; but purgatives by the mouth should never be had recourse to.

As much time as possible should be passed out-of-doors, when the weather is warm ; fatigue being carefully guarded against. The mind should be kept

occupied in some way or other, but neither laboriously nor anxiously.

The remedial measures to be adopted are few. Cod liver oil is one of the most valuable; but I give the preference to the vegetable oils, such as almond or olive, as they are less apt to disagree with the stomach. The dose of each is from two to three teaspoonsful twice or thrice a day. When the lancinating pain is severe, some of the preparations of opium, combined with aconite, should be had recourse to. The sedative solution of opium is, perhaps, the best, in doses of from ten to fifteen minims, with from two to five minims of tincture of aconite (pharmacopœia strength), in a little water.

The rules which should guide patients suffering from cancer, are :—

First, not to distend the stomach, or over-stimulate the circulation; a small quantity of nourishment at a time, and often, if the appetite or system demands it.

Secondly, to strictly avoid all stimulants, such as spices, salt, liquors, and all over mental or bodily exertion.

Thirdly, to breathe a pure atmosphere; to choose a warm residence, for warmth seems to check materially the progress of the disease; the clothing to be moderately warm, yet not encouraging perspiration.

Fourthly, strict regulation of the bowels, but without the use of medicine.

CHAPTER VIII.

HEMORRHAGE FROM THE STOMACH.

VOMITING OF BLOOD.

VOMITING of blood seems to occur generally under three circumstances: first, from simple acute or chronic ulceration: secondly, from cancerous ulceration: thirdly, from transudation; the mucous membrane being sometimes intact, sometimes raised or removed. It very rarely proves fatal. It was, however, the cause of death in ten of the 127 cases of ulceration of the stomach which proved fatal in females, and in eleven of the sixty-six cases which terminated fatally in males (*see Ulceration of the Stomach*). From this, it would seem, that males are twice as liable to hemorrhage of the stomach as females.

The following table will show the ages and sex of thirty-one fatal cases from hemorrhage:—

Ages.	Males.	Females.
From 15 to 20 years	1	1
” 20 to 25 ”	2	1
” 25 to 30 ”	3	2
” 30 to 35 ”	2	3
” 35 to 40 ”	2	1
” 40 to 45 ”	0	1
” 45 to 50 ”	0	2
” 50 to 60 ”	6	2
” 60 to 70 ”	0	1
” 70 to 80 ”	1	0
	17	14

Death ensued in six of the eighty-eight fatal cases of cancer (*see Terminations of Cancer,*) from hemorrhage.

CHANGES OBSERVED AFTER DEATH.

When the hemorrhage occurred in consequence of simple ulceration, the ulcers were generally situated on the posterior wall of the stomach, and when the gastric disturbance had been of long standing and severe, the pancreas was generally affected; the source of the hemorrhage in these cases being the splenic or the pancreatic artery. In the few cases in which the ulcers were situated in other parts of the stomach, the gastric artery or vein, in two instances the gastro-epiploic veins, were perforated.

The ulcers in some of the cases bore every indication of being of recent formation; in others their edges were hard, and surrounded by considerable induration; frequently they were completely cicatrized, save in one small spot, corresponding in size to the opening in the vessel.

When the hemorrhage had ensued from active or passive congestion, ulceration could not be always found; sometimes, by soaking the stomach in water to remove the colouring matter of the blood, one or several small plugs of fibrine could be detected, protruding from the mouths of open vessels. Sometimes one large or several small ecchymosed patches were alone observed; sometimes the mucous membrane was removed; sometimes it was softened and separated, by blood effused below it, from the

subjacent cellular tissue. In some cases the stomach was only the receptacle for the blood, its source being the lower part of the œsophagus, or the commencement of the duodenum.

SYMPTOMS.

In nineteen of the thirty-one fatal cases, symptoms of chronic gastritis had existed for periods varying from a few months to some years: in one case seven, in another ten, years had elapsed before the hemorrhage took place. In the cases where the gastric symptoms had been of long standing, the pancreas, as I before observed, was invariably affected. In some of these cases, the pain was severe and constant; in others, only occasionally, seated deeply in the epigastrium; sometimes referred to the spine, gnawing, burning, or oppressive; in some cases the patient's body was bent forward. In some of the remaining cases the hemorrhage was preceded by very slight symptoms of gastric disturbance; while in others the symptoms were severe, and of a more or less acute character.

The hemorrhage seldom proved immediately fatal, unless the patients had been previously much reduced by long-continued disease or pain, or were advanced in years. In cases of this kind, the loss of a small quantity of blood, particularly if it was repeated within a short time, was often sufficient to cause death, sometimes immediately, sometimes in a few days.

In the few cases in which the hemorrhage proved

immediately or in a short time fatal to persons in the enjoyment of good or moderate health, the quantity of blood lost in the first instance was either very great, often from eight to ten pints, or for several days in succession from three to four pints escaped.

The loss of a small quantity of blood, after the loss of a large quantity, was often sufficient to destroy life. In some cases the quantity first lost was great, that subsequently lost being small but continuous; the blood remaining some time in the stomach, where it was digested and discharged by the mouth or anus, as an ink-like, coffee or chocolate-coloured fluid, alone, or mixed with the food or fæces: the patients in these cases gradually sinking from exhaustion.

Vomiting of blood did not always occur at the time the blood was poured out. In some cases it was only when the post mortem examination was made that death was found to have occurred from hemorrhage of the stomach; this organ and the intestines being found to contain a large quantity of partly fluid and partly coagulated blood. This was the case in three of the thirty-one fatal cases. In several other cases the vomiting did not occur for three, six, or twelve hours, after the blood had been poured out.

TREATMENT.

Bladders containing pounded ice should be applied to the epigastrium, iced water given for drink, and the acetate of lead with opium, in the form of powder, administered in large doses, and repeated at short intervals until the hemorrhage stops.

CHAPTER IX.

GASTRALGIA — GASTRODYNIA — PAINFUL
AFFECTION OF THE STOMACH.

THIS affection is characterised by pain, more or less severe, occurring in paroxysms of variable duration, of a twisting, gnawing, shooting, tensive, or oppressive character, unattended by any indications of fever, and, in many instances, by no symptoms of gastric derangement.

CAUSES.

I. PREDISPOSING.—*Sex and Age*.—Females are certainly more liable than males to this affection. This is, however, contrary to the opinion of Chamberet, (*Dict. des Sc. Médicales*, art. Gastrody), who considers the latter to be the most liable. In thirty-nine cases collected by Valleix, only twenty of the number were females. This, he observes, “is contrary to what we should expect, from the known influence which leucorrhœa possesses in inducing the disease.”

Of forty-six cases which I have noted as being gastrodynia without reference to the presence of other symptoms, twenty-six were females and twenty males. The liability on the part of females is, I feel assured, much greater than this; for, of twelve cases which have fallen under my notice during the last twelve

months, eight of the number were females. Barras* considers that the disease is more apt to occur between the ages of fifteen and forty-five: Valleix, from the cases which he collected from various authors, from sixteen to fifty-six. In the cases observed by myself, the youngest patient was fifteen, the oldest sixty-four. The period of the greatest liability seems to be, in females, from twenty-five to thirty, and from forty-five to fifty-five; in males, from twenty-five to thirty, from thirty-five to forty-five, and from fifty to sixty. The following table will shew the sex and age of fifty-eight cases:—

Ages.	Females.	Males.
From 15 to 20 years	2	—
” 20 to 25 ”	1	—
” 25 to 30 ”	8	4
” 30 to 35 ”	3	2
” 35 to 40 ”	3	5
” 40 to 45 ”	2	3
” 45 to 50 ”	7	1
” 50 to 55 ”	4	3
” 55 to 60 ”	2	4
” 60 to 65 ”	2	2
	34	24

Persons of nervous and melancholy temperaments are generally considered more susceptible than others to this disease.

My own observations lead me to think, that temperament has but very little to do with the frequency of its occurrence.

* *Traité sur les Gastralgies.* Paris, 1829.

Sedentary occupations seem to predispose strongly to this affection, particularly those which favour the occurrence of derangement of the functions of the stomach or uterus and constipation of the bowels.

II. EXCITING.—It is often extremely difficult to assign any immediate exciting cause for the disease.

Marsh miasma seems to act occasionally as an excitant. In one case which fell under my notice, the affection occurred on the disappearance of ague; in another, it followed hemicrania, which had evidently been caused by marsh miasma; in a third, it followed exposure late one night on the marshes below Woolwich; in a fourth, after going from Putney to Richmond, in an open boat, one evening in September.

Gout and rheumatism seem to act occasionally as exciting causes.

Schmidtman, (*Obs. Med. ex Praxi Clinic*: lib. iii.,) mentions three instances which were attended with a gouty or rheumatic tendency. In one case, a female, aged thirty-six, the gastrodynia was accompanied by slight bleeding from the vagina; under treatment, both the pain and discharge ceased; but severe pain of the muscles and limbs set in.

In the second case, the patient, aged thirty-six, was pregnant; the disease refused to yield to the medicines employed; at length, pain in the haunch set in, and by the use of gout medicines she was soon relieved.

In the third case, a man, aged twenty-four, the disease had come on after exposure to wet: it yielded only to gout medicines. Whytt* considered gout to act frequently as an excitant of this disease.

Disorder of the uterine functions seems to act frequently as an excitant. Whytt considered that suppression of the menstrual discharge frequently excited the disease. He has reported the case of a female, aged forty-four, whose menstrual discharge was irregular, who suffered after every meal. It is very apt to occur when the menstrual discharge is retarded, irregular, scanty or suppressed; or when, from exposure to wet and cold, or the occurrence of some mental shock, it is suddenly checked. It is very apt to occur during the state of congestion which precedes the appearance of the menstrual discharge, particularly in those suffering from ulceration or induration of some part of the stomach; often inducing, in the first instance, perforation, or favouring its occurrence, by causing the ulceration to extend.

Pregnancy seems to act occasionally as an excitant: I have noticed it in four cases during the first four months of pregnancy.

Suppression of some accustomed discharge or cutaneous disease seems to induce the disease occasionally.

In Germany the suppression of the perspiration of the feet is considered a cause. Schmidtman has

* Works, edited by his Son. Edin. 1768.

enumerated it as one, and Mondiere (cited by Valleix) has given a case.

Dr. McFarlane (*Glasgow Medical Journal*, vol. ii.) observed in a man, forty years of age, who had been suffering from gastrodynia for three weeks, that the affection was caused by getting his feet wet. The same cause excited it in a delicate female, aged thirty-eight.

The suppression of some cutaneous diseases, particularly those of long standing, by external applications, sometimes induces it. I have seen two cases where the disease arose from the healing in this manner of some patches of psoriasis.

In some of the cases the patients referred the commencement of the disease to the time when piles had either disappeared or ceased to bleed. In some cases the affection is preceded or accompanied, (it may even alternate) with some other nervous affection, such as tic doloieux, sciatica, and hemicrania. I have met with six cases where this was the case. Guibert* met with a case where the patient, a female, became, after suffering some time from headache, subject to gastrodynia.

Barras had, when twenty years of age, nervous pains in the right temple: at twenty-nine, neuralgia of the spermatic cord: at thirty-six, an irregular intermittent fever. Eight years later, his digestion became troubled, and the gastralgia established itself by degrees.

* Cited by Barras, obs. xvii.

In two cases observed by myself, the disease was produced by great mental anxiety; the persons in both instances followed sedentary occupations. Barras mentions several instances where grief or anxiety excited it.

This affection sometimes precedes the development of cancer, particularly the squirrroid form: it is very apt to occur in chronic ulceration and induration, whether in the body of the organ, or in the pyloric opening.

The free use of wine, beer, and spirits, and strong coffee and tea—the last particularly when taken frequently in large quantities, and on an empty stomach—seem to act sometimes as excitants.

SYMPTOMS.

The affection presents itself under the forms named at the head of the chapter, as paroxysms of pain, of a shooting, twisting, gnawing, burning, oppressive, or contracting character, of variable duration, lasting from a few minutes to several hours. It is not always confined to the stomach; sometimes it extends to the sides, the intestines, or the lower extremities; sometimes it affects the diaphragm, inducing a sensation as if it was drawn up, rendering the taking of a deep inspiration impossible; while, at others, the heart seems to become implicated, and its action is either greatly increased, or it becomes irregular, sometimes laboured; at others, the lungs are affected, and the breathing is either hurried,

irregular or oppressed. In some cases, there is extreme nervous agitation and trembling. In one case which fell under my observation, the trunk and lower extremities were affected with convulsive shocks, about every minute, during the existence of the attacks.

When the disease has been of some continuance, the memory often fails ; mental application becomes impossible ; and the sufferers often sink into a state of melancholy or extreme nervousness, approaching almost to imbecility.

The paroxysms in some cases occur during digestion ; in others when the stomach is empty ; or at irregular or regular periods :

1. *When it occurs during digestion.*—The process of digestion is first observed to be slower than usual, and attended by flatulence ; sometimes by acid eructations, and a feeling of tension or uneasiness in the epigastrium, which gradually, sometimes suddenly, when any excess has been committed, passes into pain of a spasmodic nature, and continues until the process is over. It is not uncommon to find that articles of food of very easy digestion, often from no assignable cause, give rise to or greatly aggravate the pain. Generally speaking, salt meat, or fish, and soups, bring on or aggravate the severity of the attacks.

The patients, in cases of this form of the disease, generally follow sedentary or indoor occupations.

2. *When it occurs in the intervals of digestion.*—

The pain in these cases does not differ from that observed in the form which occurs during digestion. It is very apt to occur the first thing in the morning, particularly before food is taken : in some cases it terminates by the discharge of watery or mucous fluid, often in considerable quantity.

The patients, in cases of this form of the affection, generally follow out-of-door occupations, or they are much exposed to alternations of temperature. They often drink largely of beer, or spirits and water.

3. *When the disease assumes a periodic form.*—In these cases, the pain sometimes occurred daily, sometimes every second day, most frequently towards the evening, or towards the morning ; lasting from one to three or four hours. When it occurred at a more distant period, it was generally before the menstrual discharge appeared, but, if the last had ceased, at the time it used to flow, and lasting with more or less severity for three, four, or six days.

The appetite in all the forms is usually keen ; the tongue clean ; the epigastrium generally free from tenderness ; the urine sometimes natural, sometimes loaded with phosphates ; often a considerable quantity is voided, before and after the paroxysm ; sometimes, in the form which occurs during digestion, the urine contains oxalates.

TERMINATIONS.

This disease very rarely ends fatally, the tendency being generally to terminate in a cure ; which some-

times takes places spontaneously, from a change in the mode of living, residence, or occupation, particularly from a sedentary to an active one, or from the occurrence of disease in some part of the body ; but sometimes it occurs and no appreciable reason can be assigned for its doing so. When it terminates fatally, it is when ulceration exists ; perforation ensuing either at the time, or later, from the ulceration being extended ; or from rupture of the stomach, two cases of which are given at page 137.

It has been known to excite or pass into acute gastritis, and Trinka (*Histor. Cardialgia*) cites two instances, one from Zucati, the other from Bourrichique, where this ensued. Dr. Hope, (*Morbid Anatomy*,) reports the following case :—

“ A widow, aged thirty-six, had, four years ago, her menstrual discharge checked by fright. Mucous diarrhœa followed, and this was succeeded by intense gastrodynia, for which she took brandy and water. This excited inflammation, and she vomited incessantly for a week. By bleeding and leeches she recovered in three weeks.

“ From this time the menstrual discharge was nothing more than a mere show ; at each period she was seized with gastrodynia and vomiting. The first three attacks were attended by vomiting of blood ;* this occasionally recurred during the next two years. For the first two and a half years, the attacks of

* Dr. McFarlane observed vomiting of blood in one of the cases which fell under his notice.

gastrodynia lasted four days and nights, without any intermission; but during the next year, the menstrual discharge having ceased to appear, the attacks became irregular but shorter. For the last six months they have recurred every two or three days, lasting twenty-four hours. She at last sank, three and a half years from the time she was first seen.

“The stomach was found generally thickened and indurated.”

TREATMENT.

This must be dictated by the causes which have induced the affection, and the circumstances under which it occurs.

1. When it arises from induration, ulceration, chronic inflammation, or in connection with any disorder of the stomach, the diet and treatment laid down for chronic gastritis must be employed.

2. When it arises from marsh miasma, or occurs in connection with neuralgia of a periodic character, arsenic and quinine, with tincture of aconite, will be found of the most service.

3. When it depends on rheumatism or gout, iodide of potash, with colchicum, opium, and liquor of potash, will be of the most service.

4. When it occurs while the stomach is empty, the habits of the patients must be carefully entered into. If they drink much beer, weak spirits and water, tea or coffee, the quantity of the two first should be diminished, first to one-half, and in the

course of ten days to a third. The loss of the accustomed stimulant should be supplied by a teacupful or two of good beef or mutton tea, three or four times a day. I had, a few months ago, a farmer, about sixty years of age, under my care, suffering from this disease, which had troubled him more or less for fifteen years, and baffled every plan of treatment. He was, I found, in the habit of drinking from eight to ten pints of beer, and four or five glasses of gin and water, in the course of the day. The affection yielded in a short time, under the use of aconite, sulphate of zinc, opium, and arsenic, when the quantity of beer was reduced to two pints, two glasses of good wine being taken instead of the spirits and water.

5. When it is induced by cold or wet, a warm bath, followed by a large dose of opium, seldom fails to give relief.

6. In the periodical form, which owes its origin to suppression or disorder of the menstrual functions, the treatment and plan laid down for the *first form* will be generally found the most beneficial.

Measures directed to the state of the uterine functions should be also had recourse to. If there is chronic inflammation of the neck of the womb, it must be removed by leeches or caustic; if suppression of the menstrual discharge, change of air, and if the strength will bear it, horse exercise; and if anæmia or chlorosis co-exists, one or other of the preparations of iron should be given.

CHAPTER X.

DILATATION OF THE STOMACH.

CAUSES.

THE most frequent is chronic inflammation of the pylorus, from its frequently producing narrowing of the opening, and, consequently, obstruction to the passage of the food from the stomach into the duodenum. The next most frequent cause is cancer of the pylorus, particularly the squirrhoid form, from its being slower in its progress than the encephaloid.

It does sometimes arise from contraction of some part of the duodenum ; malposition of the pyloric orifice, by which some obstruction or difficulty arises to the passage of the food from the stomach into the intestines ; or debility of the muscular coat of the organ. The free indulgence of the appetite will also induce enlargement ; and hence it is common to find the organ twice, and, if the appetite has been unusually voracious, three or four times the usual size, unless the opening of the pylorus has been very large—then the dilatation of the organ is not very strongly marked.

Of twenty-nine cases which I have collected and observed, in—

14 the dilatation was caused by chronic inflamma-

tion of the pylorus, by which the opening had been narrowed ; sometimes so much so as not to admit of the passage of a probe.

7 from cancer of the pylorus.

2 from contraction of the duodenum.

6 from malposition of the pylorus, or debility of the muscular coat.

SYMPTOMS.

A certain length of time seems necessary for the dilatation to become marked enough to attract attention : in cancer and chronic inflammation, from nine to twenty-four months.

When vomiting exists, the abdomen will be found to become, before the vomiting sets in, gradually large and tense ; but, after it has taken place, flat, and the walls more or less relaxed and flabby. In the distended state, a tumour can be distinctly outlined, both by touch and by percussion. To the last it will yield, in the erect position, a dull sound below from the presence of fluid, and a tympanitic one above from the presence of air ; in the horizontal position the sound will generally be tympanitic.

In the empty state, or before the distension becomes marked, by pressing with the hand on the abdomen, moving it at the same time, fluid can be readily heard splashing, and a superficial observer is very apt to observe that the patient is suffering from dropsy. If the patient is examined immediately after vomiting has taken place, the splashing sound

may not be heard until from a half-a-pint to a pint of fluid is drank. The size of the stomach can be easily determined, by tracing the extent of this splashing sound, or by placing the patient successively in the erect position, and then on his sides, so as to allow the fluid contained in the organ to gravitate, and by using percussion. The matters vomited generally consist of a yeast-like fluid, which, on standing, separates into two portions,—a superficial one, consisting of food in a more or less advanced state of digestion; and a deep one, forming from a fifth to a seventh of the whole, consisting of acid or insipid watery fluid.

In a few cases the vomiting occurs once in four days, or once a-week. Frequently it consists less in an effort to vomit than in one of regurgitation, arising from the over-distended state of the stomach, and the matters rejected consist entirely of food in a digested state. In these cases a tumour can be traced by the touch and by percussion; to the last it is generally dull, except after the vomiting, then there may be some amount of tympanitic sound in the upper part; and by placing the hand on the abdomen, the splashing of fluid can be heard, if the ear is placed close to the walls, and by turning from one side to the other the distended organ will often roll with the body, in the same manner as would a bladder distended with water. The enlarged stomach has been known to fall, from its attachments giving way, to the lower part of the abdomen.

CHAPTER XI.

GASTORRHEA.—*Vomiting of Mucus.*

THIS affection is characterized by the rejection of mucus from the stomach ; sometimes it is also passed from the bowels. It sometimes occurs when the stomach is empty, generally the first thing in the morning, or soon after a meal, but without any admixture of food. In some cases it is preceded by a sensation of weight ; in others by pain of a cramp-like character, but rarely very severe.

It may arise from various causes. It is frequently observed in asthma ; sometimes in phthisis, and disease of the heart, liver, kidneys, or any other organ which can induce a state of long-continued passive congestion of the mucous membrane of the stomach. It frequently occurs in the non-ulcerative stage of cancer, in induration, or when excrescences or polypoid tumours exist.

It is very apt to occur in those who eat largely, or drink considerable quantities of raw spirits, particularly when the stomach is empty. I have seen two cases where it was induced and kept up by chewing large quantities of tobacco. Henning (*Bericht über die Med., Polyklin zu Leipzig*, 1848,

vis 1852) observes: "that it is sometimes endemic with us, from drinking water holding a large quantity of sulphate of lime in solution."

CHANGES OBSERVED AFTER DEATH.

These are numerous. In the simplest form, the mucous membrane is somewhat denser than usual; its colour varies from grey to a venous or light red; the mucous follicles developed and distended with yellow or transparent mucus; the membrane itself covered with the same secretion.

In a more advanced state, the edges of the follicles are raised, forming hypertrophied rings; or the villi are in the same state, a number of them being grouped together, forming warty patches, varying in size from a pea to a walnut, and resting on hypertrophied cellular tissue. Sometimes the hypertrophied villi, instead of forming warty excrescences, form ridges of variable length. In a case reported by Hewson, they gave the mucous membrane an appearance resembling a honeycomb. Sometimes from the hypertrophy, being confined to individual villi, separate fringe-like prolongations, varying from a few lines to half-an-inch in length are found. It is probable that in this way polypoid tumours are formed, either from a single villi, or from the aggregation of several. In an instance recorded by Breschet,* which occurred to Husson, the polypus

* Bul. de la Facult., 1817.

was six inches long, and half-an-inch in diameter. In a second case, which occurred to Dr. Carmich Smith,* the tumour nearly filled the right cavity of the stomach, and a prolongation from it was so situated, that it could block up the opening of the pylorus. In a third instance, observed by the elder Monro,† the length of the tumour is not stated, but it was considerable.

TREATMENT.

If the disease arises from the use of irritants, they must be discontinued ; if from disease of some organ, remedial measures, applicable for that disease, must be employed. The food taken into the stomach should be of the lightest kind, consisting chiefly of fish, light puddings, milk and cocoa.

* Medic. Com., vol. i.

† Monro : Morbid Anatomy of the Stomach and Gullet.

CHAPTER XII.

PYROSIS.—WATERBRASH.

THIS affection is characterized by the discharge of watery fluid, varying in quantity from half a teacupful to a pint, sometimes by a succession of mouthfuls, sometimes after severe retching. The fluid is sometimes insipid and cold, sometimes acrid and burning, occasionally bilious; its discharge, in some cases, is preceded by severe constriction, weight, burning or pain at the pit of the stomach, lasting from several minutes to half-an-hour, or an hour; in others, by only a feeling of weight, or a sense of coldness.

CAUSES.

It has been observed by Grasser* to rage epidemically.† It is endemic in Scotland, Sweden and Norway; the Laplanders, who live near the mountains, are particularly liable to it—one-half of them suffer—both males and females being equally susceptible, some suffering through life.† Heberdeen also observed it to last for life.

From my own observations, I am inclined to think that it is more common in the country than in towns,

* Cited by Reydellet: *Dict. des Sc. Médicales*, art. *Pyrose*.

† *Linnaeus*.—*Ibid*.

particularly among the poor, who are badly fed and scantily clothed, than those better cared-for. In towns, those past the prime of life, who follow sedentary occupations, and whose bowels are habitually confined, seem most liable. It may be said that whatever favours chronic inflammation of the stomach favours the production of this disease.

Dr. Copland observes, (*Dict. of Medicine*: art. Pyrosis), "that it has been attributed to the use of rye, barley, oats and potatoes, and the want of animal food. The use of unfermented or unleavened bread has been supposed to induce it. The share which these have in producing this affection can scarcely be determined. But it is also prevalent in countries where dried and smoked meats are used, or dried fish—both the meat and fish being prepared without salt, or with but very little."

The immediate or exciting causes are:—1st, irritation of the pylorus, or of the pyloric half of the stomach. It is therefore a constant attendant on chronic inflammation, ulceration and cancer—particularly the squirrroid form—of the pylorus, or of the pyloric half of the stomach. 2ndly, disease of some organ adjacent to the stomach, particularly the liver or its ducts, the upper part of the duodenum, or of the pancreas itself, or its ducts. 3rdly, mental emotion. The last is very rarely noticed.

1. A man, aged fifty-three, pale, but not very thin, by trade a book-binder, extremely nervous,—habits very regular. For years, he was subject to attacks

of pyrosis. These ceased, and were replaced by watery diarrhœa; two and three evacuations being passed in the course of the twenty-four hours; generally they were tinged with fecal matter, but sometimes they were straw-coloured or nearly clear. Each evacuation was preceded by a sense of weight in the epigastrium. If, while he was suffering from this sensation, anything occurred to excite him, watery fluid was very apt to rise spontaneously into his mouth, to the amount of two teacupsful.

2. A lady,* aged sixty-three, residing in the country, frequently the subject of pyrosis. Often it occurred spontaneously; but more frequently it was the result of some sudden emotion. A sensation was experienced of fluid gurgling about the umbilicus: this was immediately followed by the discharge of about a pint of clear, tasteless fluid. She had no pain; yet a sensation of great relief followed it.

SYMPTOMS.

The disease generally presents itself under two forms. In one, it occurs in connection with disease of the stomach.—(*See Cancer, Chronic Gastritis, and Induration and Narrowing of the Pylorus*). In another, the discharge of the fluid is the prominent symptom; in some cases it is the only one; the pain or weight being slight, or but little noticed. The fluid is generally rejected after food, more frequently

* Dr. Seymour: London Medical Gazette, 1828.

after dinner than after any other meal ; and after food digested with difficulty ;—in some cases within an hour, while in others, not for two or three, and always unmixed with food. In a few cases I have known it, when the disease has been of long standing, to be mixed with mucus. It may, however, occur in the morning, before breakfast, particularly in persons addicted to the use of spirits in excess, or who drink large quantities of spirits and water, and beer, overnight.

On carefully examining the pit of the stomach, tenderness can generally be discovered, often only in a very small spot—over the pylorus, or its immediate vicinity. The bowels are generally confined, the urine scanty and pale. The disease, when it has been of some standing, induces an anæmic state, and some degree of emaciation and debility.

TERMINATIONS.

This is generally in cure, sometimes spontaneously, from the occurrence of disease of some other organ, or of the surface of the body, or from change of habits from sedentary to active, food, season of the year, or residence from a low and damp, or cold and bleak, situation, to a dry and sheltered, or warm one. It may terminate, if the disease is kept up by the use of stimulants and free living, by inducing narrowing of the pyloric opening, or in ulceration, which may, by extending, penetrate a blood-vessel, or the walls of the stomach.

TREATMENT.

In the form which occurs in connection with chronic gastritis, the treatment laid down in that disease should be employed.

In the form in which the discharge of fluid is a prominent symptom, the treatment must be strictly soothing, and the diet must be of the blandest form. The following is the plan I am in the habit of directing patients to follow, and with the best effect:—

1. To sponge the body with tepid or cold water every morning, afterwards to use friction with a coarse towel, flesh-brush, or horse-hair glove, for a few minutes, until redness and warmth is produced. In cold weather, and when the patient is very susceptible to cold, the body should be rubbed with a wet flesh-brush, or horse-hair glove, for several minutes, until a glow is produced.

2. *Breakfast*.—Cocoa made from the nibs, milk, or milk and water, with the finest white bread, as dry toast, with fresh butter.

3. *Dinner*.—This should consist entirely of fish—soles, whiting, mackerel, trout, eels, if they are not too oily—fried, broiled, or boiled; with the central part of brocoli or cauliflower, vegetable marrow, asparagus, carrots, when very young and tender, Brussels-sprouts; puddings—tapioca, rice, sago, arrowroot, semolina—plain, either baked or boiled. For drink, a tumblerful of plain water, toast and water, barley-water, or soda water, with from two to three teaspoonsful of brandy or old sherry.

4. *Tea*.—From three to four hours after dinner ; consisting of cocoa, made from the nibs, milk or milk and water, with white bread and fresh butter.

5. *Supper*.—A piece of bread and butter, with a glass of milk or water, and a baked apple or pear, or a few stewed prunes.

I have never known the disease refuse to yield to the above plan, when it has been strictly carried out. The remedial measures which I have generally used, have been,—calcined magnesia, five grains ; tincture of aconite, two minims ; tincture of opium, three minims ; powdered jalap, five grains ; nitrate of potash, from three to five grains ; gum acacia, ten grains ; in one ounce of distilled water, three times a day.

Acetate of lead and opium seem to possess an almost specific power over this affection ; but the great objection to their use is the obstinate constipation of the bowels which they induce. Therefore, whenever they are given, the patient should take a dose of castor oil every night, or every second night, to ensure regularity of the bowels. Further, to prevent the lead from acting injuriously on the system, diluted acetic acid should be given.



PART II.

DISEASES OF THE DUODENUM.

CHAPTER I.

ACUTE DUODENITIS.—*Acute Inflammation of the Duodenum.*

VARIETIES.—1. *Simple or idiopathic*—2. *Traumatic.*

CAUSES.

I. PREDISPOSING. — *Sex and Age.* — Females seem more predisposed than males to this disease ; for, of twenty-six cases which I have collected and observed, sixteen of the number belonged to this sex. The predisposition seems strongest in females from the twentieth to the thirtieth year, and in males from the twentieth to the fortieth year. The cases are not, however, sufficiently numerous to determine, particularly in males, when the predisposition is strongest.

Of the sixteen cases which occurred to females : one was an adult ; the ages of the others were twenty, twenty-three, twenty-four, twenty-five, twenty-six, twenty-seven, twenty-nine, thirty-four, thirty-six,

forty, forty-six, fifty-two, fifty-three, sixty, and seventy-five years.

Of the ten cases which occurred to males: two were adults; the ages of the remaining eight were twenty-eight, thirty, thirty-three, forty, forty-two, fifty, fifty-five, and sixty-one years.

Frequent attacks of simple dyspepsia, habitual constipation, gall-stones, chronic inflammation of the duodenum, cholera, yellow fever, dysentery, the puerperal state, salivation, or large doses of mercury frequently repeated, seem to act occasionally as predisposing causes.

II. EXCITING.—Exposure to wet and cold, particularly while under the influence of mercury; drinking large quantities of cold fluids, when heated, or plunging while in the same state into cold water; blows or falls on the epigastrium, particularly when the duodenum is distended or in a state of excitement from long-continued indulgence in spirits; strong irritant emetics or cathartics; the passage of large gall-stones, either by ulceration through the walls of the gall-bladder and the duodenum, or along the common duct or the intestine. Inflammation in these cases is generally excited, either by the stone becoming impacted in the ulcerated opening between the gall-bladder and the duodenum, at the mouth of the common duct, or in some part of the duodenum, generally at the point where it terminates in the jejunum.

CHANGES OBSERVED AFTER DEATH.

The changes met with were : 1st, congestion more or less intense, sometimes accompanied by ecchymosis, affecting the mucous membrane, or all the coats, and attended by marked redness and a state of increased prominence, sometimes ulceration of the glands ; 2ndly, thickening of the mucous membrane, or of all the coats, accompanied by softening. The mucous membrane was more frequently affected than the other coats, and it could be either easily raised by scraping with the edge of the knife, or removed by a stream of water directed on it for a few minutes. In some instances, it had been removed during life, in patches varying in size from a shilling to a seven-shilling-piece.

Sometimes there was partial or complete destruction of the muscular, or even of the peritoneal coats. When the inflammation had affected all the coats, adhesions were frequently found between the intestine and the adjacent parts, particularly the right head of the pancreas, gall-bladder, under surface of the liver, or the right kidney. When jaundice had existed, the opening of the common duct was found swollen and narrowed, but never completely obstructed ; its lining membrane, and that of the hepatic and cystic canals, congested and thickened, sometimes covered with yellow or green mucus, or muco-purulent fluid. The only canal I have ever found obstructed after death was the cystic.

The liver was generally enlarged, dark-coloured, or green, and loaded with black blood and bile. The mucous membrane of the stomach in the vicinity of the pylorus was generally congested—if gastritis had existed, it was thickened or softened; that of the small or large intestines was generally more or less congested, and, if inflammation had existed, softened or ulcerated. When symptoms referable to the brain or its membranes had existed, they were found tinged with bile, their vessels loaded with black blood, the ventricles and base of the brain containing serum, which was generally tinged more or less deeply with bile.

In the cases where the inflammation had been excited by gall-stones, the changes met with differed somewhat from those present in simple inflammation. In some instances, a large perforation was found passing from the gall-bladder into the duodenum; sometimes the stone was impacted in the opening, and had excited severe inflammation and softening of the walls of the two organs: in others, it had made its way to or near the mouth of the common duct, and excited inflammation of the parts with which it was in contact, and sometimes perforation of the intestine.

Sometimes the stone had made its way into the duodenum, causing very little previous inflammation, but exciting it, either in its passage along the intestine, or from becoming impacted. When the last had taken place, the intestine was found gangrenous

for some extent in the immediate vicinity of the point where the impaction existed. Sometimes the intestine had given way during life, and some of the contents of the duodenum had found their way into the cavity of the peritoneum and excited peritonitis.

SYMPTOMS.

These will be materially modified, according to the position of the disease, whether seated in the first, second, or third portions of the intestine ; and its nature, whether *simple* or *traumatic*.

In the *simple form* there is pain, with tenderness on pressure, fulness, and a sense of constriction, sometimes also of burning, on the right side of the epigastrium, along the borders of the cartilages of the false ribs, sometimes extending down towards the right side of the umbilicus ; fever ; pulse variable—sometimes quick and full, sometimes slow and full, or irregular ; thirst ; scanty, high-coloured, generally yellow or brown, urine ; bowels sometimes confined, sometimes purged, the motions being loose or watery, clay-coloured, or containing a large quantity of black, yellow, or green bile. There is generally some difficulty in breathing, more marked in some cases than in others, and the action of the heart is increased, depressed, or irregular. In the absence of vomiting or jaundice, a cursory examination is apt to lead the practitioner to suppose that the patient is labouring under thoracic disease.

Nausea is constantly present, and sometimes

vomiting or retching : the last is very distressing, and attended by severe straining, from the great difficulty experienced in bringing up the fluid, which usually consists of mucus or water, mixed with yellow or green bile. Jaundice is constantly observed whenever the second portion of the intestine is inflamed (but it sometimes occurs when the first or third portions are affected), from the opening of the common duct becoming obstructed, or from the inflammation extending along the hepatic canals to the liver. The jaundice sometimes makes its appearance first on the trunk, then on the face or conjunctivæ: it is seldom, unless the obstruction to the passage of the bile into the intestines is complete or very great, very strongly marked. Its occurrence is almost invariably attended by enlargement of the liver, with weight and pain in the right hypochondrium and back ; and, when strongly marked, by pain or weight in the head, slight confusion of ideas, loss of memory, giddiness in the erect position, and loss of sleep. These last symptoms may increase in severity, and stupor, passing into coma or convulsions, succeeded by coma, occur and prove fatal.

In the *traumatic form* the pain is very severe, often of a spasmodic nature confined to, or radiating from one point, over the rest of the abdomen ; and, by careful examination, particularly at the commencement of the disease, the stone may often be detected ; the pulse is full and hard, or quick and small ; skin hot, and covered with perspiration ; face anxious ;

thirst intense ; nausea, retching and vomiting, often severe ; the matters vomited consist of mucous or watery fluid, tinged (if the common duct is not obstructed) with bile—sometimes nearly pure bile is rejected ; bowels sometimes open, but more frequently confined ; the motions loose and scanty, and pale, black or green, sometimes mixed with blood ; the urine nearly or altogether suppressed ; but there is often an incessant desire to pass it, although the bladder is generally empty. In cases where the common duct is obstructed, jaundice, more or less pronounced, will be present.

As the disease progresses towards a fatal termination, the abdomen becomes distended, tender, and tympanitic ; the anxiety of the face increases ; the pulse loses its power, or becomes very quick and small ; the matters vomited brown and watery, or thick, and of a faecal odour ; the bowels sometimes remain confined, but sometimes fluid similar to that which is vomited is passed from them. Death at length ensues from exhaustion or from collapse, from the occurrence of perforation of the intestine, and the effusion of the contents of the intestine into the cavity of the abdomen.

COMPLICATIONS.

The simple or idiopathic form is generally complicated with inflammation of the pyloric portion of the stomach, jejunum, ileum, or the first or second portions of the colon. In nine of the twenty-five

♦

cases it was either complicated with or occurred secondarily to diseases within the chest, abdomen, or with primary or secondary syphilis. Thus, in one case phthisis existed;* in the second, phthisis and tubercular disease of the peritoneum;† in the third and fourth, bronchitis;‡ in the fifth, diaphragmatic pleuritis;§ in the sixth, puerperal peritonitis;|| in the seventh, puerperal ovaritis; in the eighth, secondary syphilis;¶ in the ninth, primary syphilis.** In both these cases the patients were under the influence of mercury. It has been observed complicated with yellow fever.††

TERMINATIONS.

The simple acute form very seldom proves fatal; if it does, it is from the occurrence of perforation—from implication of the brain, in consequence of the admixture of bile with the blood—from exhaustion, induced either by excessive vomiting, from obstruction in the duodenum, or of the first part of the jejunum, or from the repeated loss of blood.

When the inflammation arises from the impaction of a gall-stone, the termination is generally fatal in

* Hunter : Diseases of the Army.

† Cas. Broussais.

‡ Gendrin and Girardet.

§ Andral : Clinique Médicale.

|| Ibid.

¶ Cheyne : Dublin Hospital Reports, vol. i.

** Marsh : Ibid.

†† Mosely on Tropical Climates.

from twenty-four to thirty-six or forty-eight hours ; particularly if the pain, vomiting and fever, are severe, and continue unmitigated by the exhibition of narcotics and the abstraction of blood.

TREATMENT.

In the simple uncomplicated form, recourse should be had to the local abstraction of blood, warm baths, salines, blisters and frictions with mercurial ointment, if it is thought advisable to bring the patient under the influence of this medicine. This mode of introducing mercury into the system is preferable to giving it by mouth, as the irritant action of this medicine on the mucous membrane of the already inflamed intestine is very apt to induce jaundice when it does not exist, or aggravate it when it does.

When the inflammation arises from the impaction of gall-stones, the efforts should be directed to allay the inflammatory action by copious and repeated local abstraction of blood, by constantly applying bladders filled with pounded ice, and the exhibition of opium in large and repeated doses, so as to keep the patient under its influence. If the vomiting is severe, the powder should be given rubbed up with a little moist sugar, placed on the tongue, and swallowed slowly. If the stomach refuses to retain it, the tincture must be given by glyster. In the first stage, when the strength is unimpaired, iced water or milk should be given in small quantities, from two to three teaspoonsful at a time, at intervals of

ten, fifteen, or twenty minutes, according to the state of the stomach. It should be borne in mind, that, when the obstruction in the duodenum is complete, or the vomiting severe, the less sustenance given by the mouth the better ; for in both instances it only tends to aggravate the inflammation. The progress of the disease must be carefully watched ; if the pulse fails, recourse must be had to strong beef tea and wine injections every four or six hours, if the state of the stomach does not admit of their being taken by the mouth.

OBSERVATIONS.

1. *Acute idiopathic duodenitis—Cure.*

A stout plethoric female, aged forty-six, subject to habitual constipation of the bowels and frequent attacks of biliousness, from exposure to wet began to suffer from pains in the limbs and bowels. These continued for nearly a week, when she was taken with vomiting, purging, and jaundice. In this state she came under my notice, on the 11th of March, 1849. There was pain, tenderness, and fulness along the margins of the right false ribs, passing downwards and inwards towards the umbilicus ; but there was none over the region of the liver, nor was there any appreciable enlargement of this organ. The abdomen was large ; the skin rather hot ; the pulse eighty-four, full ; tongue of a deeper hue than natural, and coated with yellow fur ; appetite gone ; thirst intense ; sleep impossible ; mind confused ; headache

rather severe ; respiration difficult ; urine dark coloured and scanty ; jaundice general ; vomiting and retching frequent ; the motions copious, slimy, and clay-coloured. Twelve leeches were applied to the epigastrium, and saline purgatives given ; the diet restricted to weak broths.

13th.—She has had no sickness since the 11th, but to-day the motions have become nearly black, from the presence of bile, and six very copious ones have been passed.

The same kind of motions were passed during the next three days ; they were attended by a rapid cessation of the jaundice. On the 20th, she was convalescent.

2. *Acute idiopathic duodenitis—Death.*

A male, aged fifty, of a stout habit of body, accustomed to drink large quantities of beer and spirits daily ; his health was generally good. He had an attack of acute rheumatism ten years back ; since then he has been very susceptible to cold ; his digestion is weak, and he vomits nearly every morning about a pint of bilious fluid. On the 12th of July he overheated and fatigued himself, by a very long walk : while in this state he got very wet, and remained in his wet clothes for several hours. In the evening he was seized with chills, and complained of severe pain in the lower part of the chest. He went to bed and had some strong brandy and water. Towards morning, the pain in the chest increased considerably,

and he had fever, headache, intense thirst, with frequent vomiting of bilious fluid. He continued in this state up to the 15th, when his skin became yellow. He then came under my notice: his pulse was quick and full, yet without power; skin hot; headache severe; face anxious; tongue dry, coated with dark fur; thirst intense; respiration difficult; frequent vomiting of green fluid; retching severe; great tenderness, with a feeling of constriction over the course of the duodenum, and weight and tension in the right side and back; urine scanty and deep coloured; the surface of the body and the conjunctivæ generally yellow, though not very deeply marked; bowels confined; liver somewhat enlarged, but free from tenderness. Six leeches were applied to the epigastrium; sulphate of magnesia, with hydrocyanic acid, and tincture of aconite, given internally.

16th.—He had passed three or four loose bilious motions; otherwise the same. He was cupped to six ounces, from the side, and with relief.

17th.—In the night he vomited up about a pint of dark blood. He was better; his bowels had acted twice; motions very dark, from the presence of bile; but his pulse was rather weak. Mutton and beef tea with wine. In the evening, he seemed considerably better.

18th.—In the night he had a fit of insensibility, which lasted about a quarter of an hour. While in it, he passed both his urine and fæces involuntarily.

His pulse is weaker than yesterday ; pupils rather larger than usual—eyes half open—expression stolid ; he seems indifferent to his state—before, very anxious ; easily roused, and answers questions readily and rationally ; complains of no pain, except at the right side of the epigastrium when pressure is made there ; head cool. Blister to the nape of the neck, mustard poultice to the epigastrium.

In the evening he was much better.

19th.—At four A.M., he became again insensible, and died comatose at ten P.M.

Post-mortem, twenty-four hours after death.—The surface of the body yellow ; the sinuses of the dura mater and the vessels of the membranes and the brain, gorged with dark blood. The lateral ventricles and the base of the brain contained a large quantity of serum. The stomach contained some sanguineous and bilious fluid—its mucous membrane and other tissues were deeply congested ; the walls of the pyloric opening somewhat thickened ; the mucous membrane of the duodenum was of a deep reddish brown, easily raised, and ulcerated in parts ; the mucous membrane of the common, hepatic, and cystic canals was highly congested ; the gall-bladder was empty. The jejunum, for about two feet of its length, presented a state of increased vascularity. The intestines contained blood.

3. *Acute idiopathic duodenitis.*—*Death.*

A saddler, aged forty-two, of irregular habits, for some years subject to symptoms of chronic gastritis.

In a dispute he received a blow on the epigastrium ; he felt faint, and vomited up a large quantity of drink which he had taken during the day. He made but little complaint during the next ten days ; but he was evidently unwell, carried himself in a bent position, and vomited everything taken but milk and arrow-root.

On the eleventh day he went to a bean-feast, where he drank and ate freely. He vomited frequently during the night, and the next day he kept his bed, complaining of a feeling of great lassitude, diarrhœa, and sickness.

He continued in this state up to the sixteenth day, when he came under my notice as a parochial patient. He then complained of severe pain and heat in the epigastrium and down the right side of the abdomen as low as opposite the umbilicus, with pain on pressure ; the abdomen was generally enlarged, and rather tympanitic ; tongue dry, and coated with yellow fur ; thirst intense, skin hot, pulse small and quick, but without power. The surface of the body was of a slight yellow tinge, most pronounced over the abdomen ; urine of a dark-brown colour ; vomiting frequent ; bowels loose ; motions clay-coloured. He continued in this state for the next fifteen days, making, under the use of a bland un-irritating diet, the local abstraction of blood, and salines, some improvement, except in the jaundice, which deepened in hue ; it, however, continued more pronounced on the abdomen than on any other part of the body. In the evening of this day he passed about

a pint of blood with a motion; this continued in large quantities for the next two days, when he sank.

Post mortem, eighteen hours after death.—The stomach presented several patches of thickening, and, in two places distinct traces of ulcers which had been healed some time; the pylorus was thickened and somewhat narrowed; the duodenum was generally thickened, its mucous membrane irregularly ulcerated; one of the ulcers was covered with a clot of blood, which, when removed, was found to close an opening communicating with a large vein. The pancreas was unusually dense, particularly its right head, and somewhat enlarged; the liver nearly black, natural in size, its surface irregular and covered with false membranes, and when incised, black blood and bile escaped. The gall-bladder was largely distended with bile, the ducts the same; the common duct was nearly impervious.

4. *Simple dyspepsia, followed by chronic, and later by acute, idiopathic duodenitis.*

A female, aged thirty-six, entered the infirmary on the 10th of December, 1849. She had suffered from symptoms considered to arise from disease of the liver for eighteen years; prior to this she had been for ten years liable to periodical attacks of biliousness. Her present illness dates back twenty days and commenced with cold chills.

She has now pain and tenderness in the right side of the epigastrium, with fulness and weight extend-

ing into the right hypochondrium and the right lumbar region; tenderness on pressure in the right inguinal region and along the descending portion of the colon; abdomen generally somewhat tense; pulse small and quick; thirst severe; skin rather hot; tongue clean, and red at edges, its centre coated with white fur; urine of a deep yellow colour and turbid; skin, all over the body, except the face, the same; bowels open from medicine, motions loose, but their colour natural. Six leeches were applied to the epigastrium with slight relief. Salines, with demulcent drinks and broths.

The symptoms continued the same up to the 14th, when she had an attack of shivering; which lasted from twenty to twenty-five minutes, followed by profuse perspiration.

15th.—During the night she had had several loose motions, streaked with blood. The yellowness of the skin had increased; the other symptoms remained the same. Quinine and beef-tea ordered.

In the evening she had another attack of rigors, followed by perspiration.

16th.—Delirious during the night; debility increased; pulse quick and very small; diarrhœa; the motions contained blood, both in streaks and clots.

In the evening, another rigor, but it was cut short by the sudden occurrence of vomiting of a teacupful of yellowish-green purulent matter, extremely nauseous and bitter to the taste. From this time the

diarrhœa ceased; but purulent matter, in small quantities, and mixed with bile, continued to appear in the matters vomited. The irritability of the stomach was extreme; she emaciated, and it continued to increase, but the jaundice diminished materially.

Death ensued from exhaustion on the 25th.

Post mortem.—The mucous membrane of the stomach was highly injected, that of the duodenum the same, and thickened; its glands enlarged and ulcerated, particularly in the middle and lower thirds; it contained about two table-spoonsful of purulent fluid, like that vomited up. The opening of the common duct was contracted; its lining membrane, and that of the gall bladder, cystic and hepatic canals, highly vascular, and covered with purulent fluid. The gall bladder contained about an ounce of purulent fluid: the substance of the liver presented patches of redness, varying in size from a lentil to a silver penny-piece: the cœcum and colon were ulcerated, and the lower lobes of the lungs contained small purulent collections.

5. *Symptoms referable to the stomach on the fourth day after delivery, with pain in right iliac region, from ovaritis—Acute duodenitis on sixth day—Death.*

A female, aged twenty-four, seen in the evening of the 12th of February, 1856.—She had been confined five days before, after a tedious labour of a full-

grown female child. She had gone on well up to the third day. On this day, the midwife ordered her to take a mutton chop and a pint of beer. They were followed by considerable uneasiness in the stomach, and on the fourth day she vomited frequently, and brought up some blood on one occasion. She had suffered much from mental anxiety, and had, for some days before she was confined, undergone much bodily exertion. She now complained of great depression and weakness, frequent vomiting, intense thirst, and inability to sleep; her skin was rather hot; pulse slightly quickened, but without power; tongue white in centre, but red at its sides and apex: she had tenderness in the epigastrium, particularly on the right side, and over a small space in the right flank. The uterus was not enlarged, neither was there any tenderness in the hypogastric region; bowels confined; milk and lochial discharge very scanty. Opiate—salines with henbane.

13th and 14th.—Better, no sickness; thirst less; tongue nearly clean; bowels confined. Castor oil.

15th, A.M.—Better; bowels have acted three times, motions natural; pulse quiet.

For some days she has had attacks of shivering, lasting for ten minutes, followed by perspiration. In the evening, when seen soon after one of these attacks, which had been of longer duration than usual, her pulse was quick and hard; skin hot, and covered with perspiration. To-day her skin has

presented a slight yellow tinge. This evening her tongue is coated with yellow fur; the epigastric tenderness is more pronounced, there is also distension; the tenderness in the right flank is also more marked; the breathing is somewhat hurried, but there is no alteration in the respiratory sounds. An opiate ordered.

16th.—She slept well, until four A.M., when she had an attack of shivering, which lasted half-an-hour, followed by fever and restlessness for an hour; bowels have acted two or three times; motions bilious; urine dark coloured; yellowness of the skin increased; thirst severe; ægophony in the posterior part of the left side of the chest. In the evening, she had a severe shivering fit, which lasted half-an-hour, and afterwards she had a fit of insensibility, which lasted about five minutes. Now her pulse is quiet, and she is cheerful. A draught with henbane ordered.

17th.—She slept during the first part of the night. To-day her face is yellow, but the conjunctivæ are not affected; motions bilious, and several passed; thirst severe. Blister to epigastrium. She was much better in the evening; but, from a person calling to see her, she became excited, and passed a very restless night. At four, A.M., she had a very severe shivering fit, which lasted half-an-hour. Beef-tea.

18th.—To-day the skin was found to have separated from the right buttock, leaving a sore of the size of a seven-shilling piece; tongue brown; pulse weaker; several motions passed in bed, from being too weak

to get up ; they were nearly black, from the presence of bile ; tongue black in the centre, red at sides and apex ; the yellowness of the skin has deepened ; the tenderness in the epigastrium and right flank the same. Wine with the beef-tea.

Twelve, P.M. Has had a very severe shivering fit this evening ; everything taken passes through her almost immediately ; she is conscious, but her mental faculties are obtuse ; respiration laboured ; heart's action tumultuous ; slight effusion in the left side of chest. Astringents—half-a-glass of wine every four hours—beef-tea.

19th.—Has passed a very quiet night, and after the second dose of the wine, fell asleep, and slept three or four hours. She has rallied considerably. Pulse calm and full ; respiration but slightly affected ; the jaundice has nearly disappeared ; mind clear. In the evening she again relapsed, everything taken passing through her. Astringents no effect.

20th.—Has passed a very bad night—much worse. In the evening, she had a shivering fit, the first since the 18th. When seen soon afterwards, her pulse was very weak ; features pale and contracted.

21st.—Has passed a better night : rather overheated, from her mother giving her too much wine ; pulse better ; the jaundice gone, leaving only a slight shade of yellow. At twelve A.M., she was taken with a severe shivering fit ; pulse almost thready ; motions to-day yellow. At nine P.M., she had another shivering fit, which lasted a quarter of an hour.

22nd.—Has passed a very restless night ; to-day

nearly pulseless; respiration laboured; sensible, but too weak to speak. She rallied somewhat in the course of the day for a short time; she sank on the evening of the 23rd.

Post mortem.—The examination was not made until six days after death. The surface of the body was of a slight yellow tinge; the stomach contained half-a-pint of brownish coloured fluid; the duodenum and jejunum contained yellow mucus; the ileum a little of the same kind of fluid as the stomach. The mucous membrane of the stomach was more easily separated in some parts than in others; that of the duodenum in its upper half presented red patches from one to two inches in length, and from three to four lines broad, formed by enlarged glands placed on the upper border of each of the valves; the remaining portion of this intestine and the jejunum for some distance was injected. The mucous membrane in the duodenum was easily raised by scraping it with the edge of the scalpel. The right ovary was of the size of a large chesnut, and of a deep purple hue; it contained about two teaspoonsful of pus. The uterus was not enlarged, but its lining membrane was dark coloured on its right side for a space half the size of the hand; portions of the placenta, varying in size from a split pea to a small bean, adhered; from under these, on pressure, a few drops of pus exuded; on careful examination, this was found to come from the right ovarian tube, which, like the ovary, was of a deep

purple colour, and distended with pus. The left pleural cavity contained half-a-pint of sero-purulent fluid ; the spleen was black, and easily broken down ; liver healthy, but enlarged, from being gorged with blood ; the gall-bladder half full of bile ; the ducts free, their lining membrane rather more vascular than usual.

The child was taken with jaundice on the second day, and purulent ophthalmia on the third. The purulent matter was of a deep saffron colour ; its motions were for the first five days green and loose, then they became natural, and the jaundice and yellow colour of the discharge disappeared.

6. *Labour, followed by hemorrhage, and on the fourth day by acute idiopathic duodenitis—Death.**

A female, aged twenty-nine, after a rapid and easy labour, was taken with hemorrhage, which was checked by the application of ice to the abdomen, and lemon-juice to the neck of the womb. The lochial discharge flowed as usual ; but on the fourth day, from no known cause, it ceased, and severe pain in the abdomen set in. On the fifth day she entered La Charité. Her abdomen was tense, and very painful on pressure ; respiration quickened, but without cough or expectoration ; pulse small and quick ; skin hot and dry ; tongue natural ; bowels had not been moved for two days ; no nausea or vomiting ; face

* Andral : Clinique Médicale, tome ii., 610.

pale and altered ; depression extreme. The uterus was not enlarged, and its neck could be touched without inducing pain. Twenty leeches to the abdomen, castor oil, fomentations, and emollient enemata.

Every time she attempted to take the castor oil she vomited. During the day she became more and more depressed : a yellow tint appeared ; and on the morning of the sixth day marked jaundice existed. The prostration continued to increase, and she sank in the evening.

Post mortem.—A large quantity of gas escaped when the abdomen was opened ; the intestines were united together by white albuminous masses ; thick yellow pus was contained in the pelvis ; the sub-peritoneal cellular tissue presented in many points a state of deep injection ; the mucous membrane of the stomach was pale, but that of the duodenum was of a deep red throughout ; the vessels of the sub-mucous tissue of the small intestines and the cœcum injected ; the liver offered, neither in its substance nor in its canals, any change. The lining membrane of the uterus was red, the uterus itself natural. The colon contained hard fæces.

7. *Acute idiopathic duodenitis—Death*.*

A male, aged fifty-five, stout and muscular, while in a state of profuse perspiration drank a large quantity of cold water. Next day he had chills,

* Marsh : Dublin Hospital Reports, vol. i.

and for several succeeding days, and felt so weak that he was unable to work. Jaundice appeared, his appetite and strength failed ; thirst intense.

24th July.—Fourteen days from commencement he had occasional attacks of syncope ; dimness of sight ; dyspnœa ; constriction at epigastrium, with tenderness on pressure ; nausea ; tongue moist in centre, but red at its edges ; skin of a lemon colour ; pulse sixty, soft and full ; motions white. By freely purging with Epsom salts, he was somewhat relieved.

29th.—Much pain on pressure. Sixteen leeches, mercurial frictions, and sulphate of magnesia. Better.

August 1st.—Appetite very craving ; skin less deeply coloured, moist ; thirst less ; urine high-coloured ; debility extreme.

2nd.—Mouth sore ; constipation ; pulse slow.

4th.—Has had pain in the temples during the last few evenings, lasting the early part of the night, and then subsiding. Better ; stools darker.

6th.—Rigors occasionally ; motions white ; pain in epigastrium ; thirst ; no appetite ; pain in forehead and temples ; tongue coated and very red ; pulse slow. Bled and leeches, with relief to the pain. The tongue, however, became dry, brown in the centre and red at the margins ; urine diminished in quantity, pulse weak ; great languor and debility, and he felt as if intoxicated. Anodyne draught.

September 3rd.—Motions still clay-coloured, frequent, tinged with blood, and attended by much

pain and tenesmus ; pulse weak. Leeches were applied to the lower part of the abdomen ; the dysenteric symptoms disappeared, and he appeared to improve. Towards the end of September the dysentery returned ; stools frequent, foetid, dark coloured, and full of coagulated blood : the jaundice remained unabated. Death on the 8th of October.

Post mortem.—The liver was shrunk ; the peritoneum contained bilious-coloured fluid ; the mucous membrane of the stomach, near the pylorus, was highly vascular, and presented a large black patch. The duodenum was highly vascular, bile was mixed with its contents. The ileum, near the caput coli, very red, its contents of a chocolate colour. The caput coli was deeply ulcerated, and covered with purulent matter ; the colon and rectum ulcerated. The substance of the liver flabby and yellow—when incised, green bile escaped ; the gall-bladder contained several ounces of dark-green bile, its duct near the superior part contracted and very small, the rest of the cystic duct dilated. Brain healthy, the dura mater alone yellow.

8. *Acute gastro-enteritis — Improvement — Later, acute idiopathic duodenitis—Death.**

A soldier entered the hospital on the 20th of January, 1835, suffering from diarrhœa of eighteen days' duration, and presenting symptoms of acute

* Cas. Broussais : Barby Thèse de Paris, 1836.

gastro-enteritis. By treatment the symptoms were arrested. The pulse, however, continued quick, and, although he took a considerable quantity of nourishment, he did not gain strength. The abdomen gradually enlarged from the accumulation of fluid, and was tender to the touch; the tongue was red and coated, and there was fever, with thirst, and great debility; urine reddish-black. Baths and cupping produced no relief.

Towards the 10th or 12th of February, jaundice appeared; on the 25th, from cupping, he felt better.

March 1st.—After eating some prunes, he discharged very green bile, both from the mouth and from the rectum. The abdomen had diminished ten lines in diameter.

7th.—Same state: has had vomiting, but the eau de Seltz arrested it.

15th.—The jaundice had disappeared, a slight tinge on the conjunctivæ alone remaining; the skin was desquamating as after general erysipelas; emaciation extreme; the tongue continued dry; urine clear and more copious; appetite good; the abdomen less. He died, however, on the 15th.

Post mortem.—The peritoneum tuberculous; intestines adherent; stomach with red patches; duodenum in its first two-thirds of a reddish-brown; the mucous membrane healthy; the rest of the intestines healthy. A cavity existed in the left lung; the apex of the right one was red and friable.

9.—*Ulcer of the leg—Later, bronchitis, followed by acute idiopathic duodenitis—Death.**

A male, aged sixty-one, stout, tall, and well-made, entered the hospital, on the 1st of March, 1827, for a small ulcer on the leg.

On the second day, he began to cough, and when seen on the 4th, symptoms of bronchitis were found to exist. Two hours later, congestion of the lungs set in with great violence. He was bled from the arm, with but slight relief.

5th.—Worse : pulse quick and irregular ; skin hot and dry, and since yesterday it has assumed a yellow tint ; tongue white ; epigastrium and right hypochondrium painful ; diarrhœa since yesterday, the motions bilious. Death.

Post mortem.—In addition to changes in the lungs, the duodenum was greatly injected throughout, and contained much bilious fluid.

10. *Pneumonia—Later, acute idiopathic duodenitis—Death.†*

A male, aged forty, entered the Hotel Dieu, on the 11th of May, with cough, expectoration, and severe pain in the side. The alæ of his nose were yellow ; he had vomited green matter several times, and complained of heat in the upper part of the abdomen, extending from one hypochondrium to

* Girardet.

† Gendrin : Hist. Anat. des Inflam., tome i. 557.

the other. His epigastrium was tender on pressure; liver not enlarged; urine dark coloured; bowels purged, the motions bilious and liquid. Six leeches were applied with relief.

12th.—Same state. In the night he had vomited porraceous bile. In the evening there was tranquil delirium, which increased during the night.

13th.—Same state, but the cough was frequent; expectoration copious; tongue yellow, and coated, with a tendency to dryness; pulse rather quick and full; skin hot, and its general hue yellow; the conjunctivæ were also affected; he frequently vomited bilious fluid. In the evening the delirium continued; face emaciated, cheeks injected, eyes brilliant, thirst severe, abdomen rather tense.

14th.—The features altered; body covered with warm viscid sweat. Death.

Post mortem.—The mucous membrane of the stomach and duodenum was of a reddish-brown, that of the jejunum and cœcum presented red patches. The mucous membrane of the choloidic, cystic, and hepatic canals was of a rose hue; this colour also extended into the biliary canals. The membrane was not sensibly thickened, nor was there any obstruction; yet all the biliary canals were filled with green bile, mixed with mucous striæ. The liver was of a rather deeper colour than usual; the spleen larger; the left lung impermeable to air, greyish-brown and infiltrated with pus. The arachnoid membrane on the convexity of the brain was milky and thickened, it

was most marked on the left lobe; all the tissues were yellow.

11. *Symptoms referable to the epigastrium, followed by acute idiopathic duodenitis—Death.**

A female, aged forty, suffering from pain in the stomach, for which she took, on the 10th of March, without relief, some purgative pills. On the 12th, she was taken with chills; severe pain in the epigastrium, rather to the right side; vomiting of all taken; intense thirst; pulse natural, skin cool, no tenderness on pressure.

13th.—Hiccough; hot skin; pulse 100.

14th.—Matter vomited like thin chocolate; abdomen and epigastric region tense; pulse 120; thirst urgent. In the evening, the pain diminished, but the other symptoms continued. Death.

Cupping and bleeding were employed, and enemas given, but no evacuation could be obtained. Eight years before, she had had ascites—this was cured, and since she has had two attacks of dysentery.

Post mortem.—The omentum adhered to the peritoneum; small intestines red, and largely distended; the large intestines were very small; the duodenum ruptured when it was touched, and fluid tinged with bile escaped; its coats, five or six inches below the pylorus, were thin and ulcerated, beyond this point they were natural. The pyloric portion of the stomach presented a granular appearance; the pyloric

* London Medical Review, 1812.

opening narrowed, but not thickened. The large intestines contained a little fæcal matter.

12. *Acute idiopathic duodenitis—Perforation of the intestine—Death.**

A soldier entered the hospital of Gros-Caillon, on the 13th of July, 1831, suffering from slight pain in the head, and general uneasiness, caused by bathing in the river some days before. Fifteen leeches were applied to the epigastrium; demulcents and baths.

On the 29th, fever set in, accompanied with great thirst and headache. Thirty leeches to the epigastrium. His skin became yellow: leeches were again applied; great depression followed their use; blisters were applied, and camphor given internally.

About the 16th of August, the tongue became moist and of a rose red; appetite very ravenous, and diarrhœa, which had occurred several times, returned.

He died suddenly on the 5th.

Post mortem—The mucous membrane of the stomach was of a deep red, that of the duodenum the same; in the first part of the last there was a perforation of the size of a five-sous piece, with black gangrenous borders. The peritoneal cavity contained greenish-brown coloured fluid. The mucous membrane of the small intestines and the colon was of a dark slate colour, covered with the same kind of fluid as existed in the peritoneal cavity, and besprinkled with ulcers.

* Cas. Broussais: in Barby Thèse de Paris, 1836.

13. *Acute idiopathic duodenitis—Perforation of the intestine—Death.**

A delicate female entered the workhouse, suffering from dyspnœa, short cough, with scanty, frothy, expectoration. Her face was anxious; she occupied a sitting position, resting on her elbows, the slightest change inducing suffocation. Her aspect was that of a person suffering from pericarditis, but her pulse was quiet, and no indications of thoracic disease could be discovered. Her illness had commenced suddenly the other evening, with a sense of suffocation and uneasiness in the epigastrium, but without either nausea or vomiting. She continued in the same state for five days, when she was taken in the evening with severe pain in the epigastrium, and retching, but no vomiting. The pain spread all over the abdomen, and it became tympanitic and very tender. Opium was given, but without relief. Death took place in twenty-four hours.

Post mortem.—The cavity of the peritoneum contained yellow fluid, the peritoneum was inflamed, liver pale, and adherent to the stomach by lymph. In the duodenum, near its junction with the pylorus, an oval opening existed, of the size of a sixpence, with dark edges; opposite to this there was another ulcer, but it had only destroyed the mucous membrane. The viscera of the thorax were free from disease.

* Dr. Mayne: Dublin Quarterly Journal, 1851.

14. *Acute traumatic duodenitis from the impaction of a gall-stone—Death.*

A female, aged fifty-three, the mother of children, stout and healthy, had complained of a dull pain in the side, for a week or ten days, with loss of appetite, bitter taste in the mouth, and an irregular state of the bowels, three or four loose motions being passed in the course of the day, with a frequent desire to pass water, although none could be evacuated. When seen in the evening of the 11th of July, she was suffering from severe pain of a spasmodic character, referred to the small intestines, with frequent desire to pass water. The bowels to-day had only acted once. A bag containing hot wet bran was applied to the abdomen, and a large dose of laudanum given. The next day she was much better. She was again seen on the morning of the 18th, suffering from severe pain, referable to a space the size of the palm of a hand, near the lower border of the cartilage of the tenth false rib, extending over the upper part of the abdomen and into the right lumbar region, where it was very severe; the abdomen itself was distended; tender on pressure; the last was, however, most marked at the space just named, and along the margins of the ribs; face very anxious; pulse quick and small; bowels confined, no evacuation having been passed for three or four days; tongue white in centre, its edges and apex red; thirst severe; retching severe, nothing was however brought up but the fluids drank. Twelve

leeches were applied, followed by bags filled with hot wet bran; a purgative glyster administered, and sedative solution—aconite and hydrocyanic acid given. In the evening, she was somewhat calmer, the glyster had not brought away any faecal matter, the irritation of the stomach was still severe; iced water and mutton broth, given a teaspoonful or two at a time, were the only things that remained down. She continued in this state for the next four days, improving however, rather than getting worse. I felt assured that the symptoms were due to inflammation, induced either by a gall-stone or invagination of the intestine, and that strict antiphlogistic measures, regulated with due regard to her strength, could alone effect a cure. This opinion, was however, overruled: it was thought advisable to obtain an evacuation from the bowels. Castor oil was given, but it was immediately rejected. Croton oil was then employed, but with no effect upon the bowels; it excited, however, severe retching. On the fifth day, the pain had increased, and the pulse had risen from ninety to 100; it was small, and without much power; the irritability of the stomach severe; the retching nearly incessant. Eighteen leeches were applied to the seat of pain, and as the stomach ejected everything introduced into it, fifty minims of sedative solution, with half a teacupful of beef-tea, was injected into the rectum. She felt calmer after the use of these measures, and slept for three or four hours. The next two days she continued in much the same state. Sleep and some relief to the pain was obtained

by the use of opiate injections, and recourse was had to frictions, with strong mercurial ointment. In the morning of the third day, a black foetid motion was passed, and, during the next twenty-four hours, five or six others; she also vomited some dark-coloured fluid. A state of extreme feebleness was the result, which the free use of wine and beef-tea somewhat relieved. She passed the fourth day in a tranquil state, and had no evacuation of black matter. The pain and tenderness still existed, but they were not so severe; the pulse was, however, very feeble. At ten P.M., she passed a large quantity of black matter from the bowels, and expired soon after.

Post mortem—Sixty hours after death.—The lower margin of the liver, the gall bladder, duodenum, and the right head of the colon, adhered to each other; the adhesion was, however, most marked between the gall bladder, which was enlarged and thickened, and the duodenum: a communication existed between the two, capable of admitting the thumb. The duodenum in its lower third was red and softened, breaking down when touched; the jejunum contained an oval shaped gall-stone.

15. *Acute traumatic duodenitis, excited by a gall-stone—Death.**

A female, aged fifty-two, subject to attacks of pain in or about the stomach, and constipation of the bowels, which were relieved by mercurial purgatives, was seen on the 27th of June, 1823, suffering

* Howship on Indigestion, 184.

from severe pain and distension at the pit of the stomach, causing her to feel faint and sick; her face was pale; features contracted; pulse sixty. Her bowels of late had been relaxed and irritable, and her appetite bad. Some saline purgative medicine was ordered her, the first dose of which was rejected, but the second was retained.

28th.—Better; the pain had removed to near the right head of the colon; the epigastric region was tender on pressure; bowels open.

30th.—Better.

On March the 14th, 1824, she was taken with severe pain at the pit of the stomach; skin cold; pulse fifty; bowels confined;—Aperients were given without relief;—Opiates were rejected.

16th.—Pulse eighty, small; tongue clean; bilious and somewhat stercoraceous matters were thrown up: great restlessness was now added.

18th.—Vomited little else than fluid fæces.

19th.—Threw up at one effort three pints of fæcal fluid. Towards evening, cold sweats set in, and at midnight she expired.

Post mortem.—A large ragged ulcer was found in the duodenum, opening into the gall bladder, which adhered to it. The gall bladder was thickened and contracted; there was a small stone at its base, confined by partial contraction of its coats. The duodenum and jejunum were highly vascular, and distended with fluid fæces. At the termination of the distension, a large rough gall-stone, two inches long, and one and a quarter broad, was impacted.

16. *Acute traumatic duodenitis, excited by a gall-stone,
—Relief—Subsequently peritonitis—Death.**

A male, aged thirty, robust, was taken in the month of July, 1824, with slight gastro-enteritis, for which he was treated by purgatives and nauseants. Since then, he has always had pain in the duodenum, which calomel and nauseants increased. When seen, he was suffering from severe pain, but by leeches, opiates, and a strict diet, he was relieved. From eating some potatoes, the pain returned, but by the use of the same measures it was mitigated; but another pain came on, in the left lumbar region, which leeches and enemata failed to relieve. Two days after its commencement, peritonitis set in, and he sank in twelve days.

Post mortem.—The cavity of the abdomen contained yellow troubled liquid; the peritoneum inflamed; intestines glued together by lymph, and the great omentum thickened. The stomach presented a state of redness near the cardia; the duodenum was of a brown colour, the liver yellow and atrophied. Some gall-stones existed in the gall bladder, and one distended the common duct, just before it opened into the duodenum.

17. *Acute traumatic duodenitis—Death.†*

A lady, aged sixty, had been for several years subject to attacks of acute pain in the right hypo-

* Cas. Broussais : Sur la Duod. Chronique. Paris, 1825.

† Abercrombie : Diseases of the Abdomen.

chondrium, lasting for a few hours, and then suddenly subsiding. On the 14th of January, 1824, she was seized with an attack similar to her former ones, but it did not subside. In the night she vomited frequently. On the 15th, she had fever, and the pain had extended, and was referred to a space on the right of the abdomen which was tense and tender; the vomiting continued, and the bowels were confined.

16th.—Some discharge from the bowels, after a tobacco enema. The pain continued, her strength failed, and she sank in the evening, from the vomiting.

Post mortem.—The upper part of the duodenum presented indications of inflammation, with remarkable softening. A large irregular stone was found sticking in the common duct: the surrounding parts were so soft, that they yielded to the slightest touch.

18. *Acute traumatic duodenitis.*—*Death.**

A female, aged twenty-seven, entered, suffering from constipation, with constant vomiting and severe abdominal pain. Her abdomen was tense, tympanitic and tender, and she was much exhausted. Some hard faecal matter was removed by an injection, —Death ensued two days after admission: it was preceded for some hours by a state of collapse.

Post mortem. The small intestines were greatly

* Dr. Peacock: Transact. of Pathol. Society, 1850.

distended—their mucous membrane congested. At the point where they joined in the colon a large gall-stone was found impacted. The contents of the small intestines consisted of bile, thin fæcal matter, and a bloody fluid, like that obtained by washing flesh. The gall bladder adhered to the duodenum, and at the point of adhesion a communication capable of admitting the forefinger existed. On one side, the adhesions had given way, and an opening existed between the duodenum, gall bladder, and peritoneal cavity. Another gall-stone was found impacted in the lesser extremity of the gall bladder.

19. *Acute traumatic duodenitis.—Death.**

A female, aged seventy-five, subject to habitual constipation, entered the Infirmary of the Salpêtrière, on the 14th of January, suffering from vomiting, first of food, then bile, and severe pain in the epigastrium and right flank, with tension of the abdomen, and constipation. She sank on the 17th.

Post mortem.—The duodenum adhered to the gall-bladder, a large communication existing between the two. At the upper part of the small intestines, a gall-stone, of the size of a pigeon's egg, was found.

* Renaud : *Revue Médicale*, 1826.

CHAPTER II.

CHRONIC DUODENITIS.—*Chronic Inflammation of the Duodenum.*

CAUSES.

1. PREDISPOSING.—*Sex and Age.*—Males seem more predisposed than females to this form of inflammation; for, out of thirty cases, twenty-one belonged to the first sex, and only nine to the last. This is contrary to what was observed in the acute form: in it the predisposition was more strongly marked in females, for fifteen out of twenty-five cases belong to that sex. The predisposition seems to be most pronounced in males from the fortieth to the sixtieth year; for twelve of the twenty-one cases occurred in persons between these ages. The following table will show the sex of thirty cases, and the ages of twenty-eight:—

Ages.	Females.	Males.
From 15 to 20	2	0
" 20 " 30	1	1
" 30 " 40	3	3
" 40 " 50	7	2
" 50 " 60	5	2
" 60 " 70	2	0
	1 Adult.	1 Adult.
	21	9

The most frequent predisposing causes seem to be—frequent attacks of simple dyspepsia; obstinate constipation; diarrhœa; cholera; high living, at the same time eating to excess; the habitual use of large quantities of spirit, whether raw or mixed with water, or rich wines; gout; disease of the liver, lungs or heart; cancer of the pancreas, pylorus, or of an adjacent organ.

II. EXCITING.—In some cases, it seemed to have been excited by exposure to cold and wet; in others, by injuries of the epigastrium, great mental anxiety, the too frequent use of irritating purgatives or emetics, or the passage of gall-stones.

It sometimes occurs as a sequel to the acute form.

CHANGES OBSERVED AFTER DEATH.

These were somewhat numerous.

In the most simple form the mucous membrane was congested, thickened, and mammelated; of a greyish or deep brown colour, sometimes ecchymosed; the glands developed, and occasionally ulcerated. The consistence of the membrane was also frequently altered; in some cases it was easily raised and torn, in others softened. In a more advanced form, there was thickening, from the deposit of the elements of inflammation in the sub-mucous cellular tissue; the valvular appearance of the intestine was more or less destroyed, and the mucous membrane more or less ulcerated. The thickening was sometimes accompanied by narrowing of the intestine, in some cases

to such an extent, that the apex of the finger, sometimes even a female catheter, could not be passed. When the narrowing was very marked, it was nearly always confined to a small space; sometimes it existed without any very marked thickening of the coats. It was almost invariably attended by dilatation of the intestine above it, and of the stomach. In some cases, the only changes found after death were patches of thickening, sometimes of an almost fibrous or cartilaginous consistence, or ulcers, varying in number from one to twelve, and in size from a split pea to a shilling or two-shilling piece, with more or less thickened and indurated edges. In some cases the ulcers were quite superficial, in others they had destroyed all the coats; sometimes, before this had taken place completely, adhesions had formed between the edges of the ulcer and the under surface of the liver, the right head of the pancreas, the kidney, or the arch of the colon. Adhesions with the pancreas were more frequently observed than with any other organ. In one case, which has fallen under my observation, there was a sac capable of containing a hen's egg in this organ, which communicated with the duodenum, by an opening of the diameter of a fourpenny piece. In a case observed by Rayer, the ulcer had penetrated into the liver, and a communication existed between it and the colon. A gall-stone was found in the liver. In some cases the ulcers in the intestine were partially or completely cicatrized.

The changes observed in the adjacent organs were various. In some cases the mucous membrane of the stomach, particularly in the pyloric portion, was congested, thickened and mammelated, or softened; sometimes the pyloric opening was narrowed. If there was narrowing of the duodenum, the stomach was enlarged to three or four times its natural size, particularly if the obstruction had been great and of some duration; and its walls, particularly if there had been vomiting, thickened, from hypertrophy of the muscular and cellular coats.

The right head of the pancreas was frequently indurated and enlarged, its ducts containing calculi; sometimes it had undergone more or less fatty degeneration, or it contained an encephaloid tumour.

The opening of the common duct was sometimes very prominent, sometimes indurated, or surrounded by a patch of congestion, induration, or ulceration. The lining membrane of the ducts was rarely affected,—sometimes it seemed rather denser than in health; minute gall-stones were sometimes found adhering to, or partially or completely imbedded in it. The walls of the gall-bladder were sometimes thickened, the bladder itself enlarged, particularly if there had been any obstruction to the entrance of the bile into the duodenum: it often contained one large or several small gall-stones. In some cases, from the impaction of a gall-stone, or from inflammation of the lining of the cystic duct, the communication between the gall-bladder and the other ducts was

cut off. The bladder in these cases was sometimes atrophied, reduced to the size of a walnut or a filbert, its cavity nearly or quite obliterated; but sometimes it was not greatly diminished in size, but contained a large quantity of straw-coloured, watery, or mucous fluid. The liver in some cases was hypertrophied, in others atrophied, cirrhused, or in a state of fatty degeneration, either generally or partially.

SYMPTOMS.

These will be modified somewhat according to the position and the extent of the disease.

1. *As it affects the first portion.*—There is pain, tenderness and fulness, referred to the margins of the right false ribs, most pronounced towards the close of digestion, and continuing until the process has ceased. There is also pyrosis or vomiting of a morning, generally of bilious, but sometimes of watery or mucous fluid. The appetite and digestion are good; the urine sometimes natural, sometimes loaded with urates; the bowels generally confined and irregular; the motions more or less mixed with mucus. The progress of the disease is slow;—it often exists and receives but little or no attention, or, if it does, it is referred to the stomach or the pylorus.

2. *As it affects the second and third portions.*—In these cases the symptoms will be more characteristic, but much will depend on the extent of the inflammation, and its position, or whether it exerts any influence upon the passage of the bile into the

duodenum. There is pain, more or less pronounced, accompanied by tenderness on pressure, and a sense of constriction or fulness, confined to a small space, but sometimes occupying the whole length of the intestine, extending down from the eighth or ninth cartilage of the right false rib, in a somewhat letter-S-like course towards the right side of the umbilicus. In some cases the pain, tenderness and constriction, are constant, greatly aggravated by taking food or irritating fluids; in others they are felt only after food, and are more liable to occur after dinner than any other meal. The pain is not aggravated or excited immediately after food is taken, but in from half-an-hour to an hour, or as soon as the chyme enters the duodenum, and the admixture of bile and pancreatic fluid commences, and is attended by flatulent eructations, and sometimes by slight nausea. In some cases the symptoms cease or decline immediately after the process of digestion is finished; in others they continue for several hours; but, if the food has been very irritating or indigestible, they may last for some time.

The bowels are generally confined and irregular, but sometimes they are relaxed and irritable. When the first state exists, the most powerful purgatives are generally necessary to keep them open; when the last, the evacuations are usually small in quantity; even purgatives seldom succeed in obtaining copious evacuations. The motions are peculiar and characteristic of the disease. In some cases they are of

the colour and consistence of dirty paste ; in others hard and claylike, sometimes streaked with black bile, or formed in part, sometimes altogether, of bile, black and pitch-like, yellow or green, and mixed with or surrounded by mucus. The odour of the evacuations is often peculiar ; sometimes it is faint and sickly, sometimes highly offensive and resembling that given off by fish or vegetables when putrefying. In some cases these peculiar states of the motions, with slight pain in the duodenum, or in the right lumbar region, are the only indications of the existence of the disease.

The pain is rarely acute or strongly marked, unless ulceration exists, then it may be dull and boring ; sometimes the chief pain is referred to the back, between the shoulders, that in the vicinity of the margins of the false ribs consisting of a feeling of tension or constriction. The last, patients frequently observe, is worse to bear than actual pain. It wears down the nervous powers, and renders the sufferers irritable, nervous and melancholy, and often, from the great bodily and mental depression which it excites, incapable of exertion.

On examining the right side of the epigastrium, fulness, with tenderness on pressure, more or less marked, according to the extent of the disease, can generally be discovered, particularly after a full meal. This enlargement and fulness are often considered to arise from enlargement of the liver ; but they are accompanied with a clear sound on percussion, and

in the intervals of digestion they diminish or disappear. The liver in this disease is generally natural in size, sometimes it is diminished.

Food of a saccharine or farinaceous nature, strong sweet tea or coffee, and rough or sweet wines, particularly after a full meal, seem very liable to excite or aggravate the symptoms.

The appetite is generally good, and the digestion rapid. The patients make no complaint immediately after food is introduced into the stomach, but as soon as it begins to be digested and passes into the duodenum the symptoms commence. The tongue is usually dry or flabby, coated or streaked with white fur; the thirst, particularly during digestion, severe, and yet drinking even the simplest fluids but adds to the distress without relieving it; in some cases, particularly if cold, they give rise to severe headache, which may last six, twelve, eighteen, or twenty-four hours, and be only got rid of by copious purging, vomiting, or starvation. Headache is a constant symptom, and often exists when the epigastric pain is but very slight; it is generally of a dull heavy character, situated over the eyebrows, or at a small spot on one of the temples, and is increased by motion and mental application. The skin is generally harsh and dry: it is often affected with psoriasis, sometimes with prurigo; in one case nettle-rash existed. The pulse is rarely affected, unless the disease assumes a subacute character. Patients labouring under this disease have generally

suffered from bilious attacks for some time. These attacks still continue to occur; they are severer than before the duodenum became inflamed, and often last for several days. They are characterised by severe headache, sometimes confined to one or both temples, the whole of the forehead or head, dull and lancinating, or heavy and beating, and greatly aggravated by motion, the erect position, and mental exertion. Nausea, retching, and sometimes vomiting exist. The urine is scanty, sometimes pale and watery, sometimes high coloured and loaded with urates; the bowels confined or irregular; the motions very deficient in bile; the tongue is coated, and there is often marked thirst and increased pain, tenderness, and constriction of the duodenum; the conjunctivæ often become muddy, sometimes yellow, and the skin often assumes a jaundiced tinge. These attacks sometimes occur at irregular periods, often induced by slight irregularities in diet, drinking cold fluids during digestion, mental emotion, exposure to cold and wet when heated, constipation, or inefficient action of the bowels. Sometimes they occur with great regularity once a week, or once a fortnight; in females often immediately before the appearance of the menstrual discharge. In the cases in which the attacks occur periodically, or from constipation, or irregular action of the bowels, they are generally preceded by premonitory symptoms. In some instances these symptoms consist of an increased desire to pass water, which is sometimes pale and

watery, sometimes high coloured and loaded with sediment; the first state continues until the attacks set in, or they begin to decline, when a copious sediment begins to appear, and continues for some days: the last state generally lasts (the quantity of the sediment increasing) until the attacks begin to decline, when it gradually diminishes. The bowels at the same time grow more and more sluggish, faecal accumulation takes place in the descending portion of the colon, daily increasing in quantity; the head becomes painful, the appetite capricious, the tongue coated; the mouth disagreeable, and the breath offensive. In some cases the patients suffer severely from spasms.

At length the attacks set in, and last for six, twelve, eighteen, twenty-four, or thirty-six hours, relief being only obtained by the evacuation of bile. In some cases, when the spasmodic contraction of the opening of the common duct is severe, great difficulty is experienced in obtaining its evacuation. When the attacks have been very severe, and of some days continuance, oil-like fat is sometimes passed from the bowels, towards their termination; generally it is mixed with the faeces, but sometimes it occurs distinct. In one case, which has fallen under my notice, some green fluid was vomited up, which, on the addition of cold water, coagulated into fatty masses. The patient, a female, had passed fat from the bowels several times.

The circumstance which seems to render fat liable

to appear in the motions or vomited matters is detention of the bile in the common or hepatic ducts for some time, during which it undergoes some change, which renders it unfit for absorption.

I have seen two cases, in which it occurred towards the close or at the end of the attacks. The quantity passed was small in both instances; it did not occur constantly. Fat may also occur in this disease, unconnected with the attacks just named, but under the same circumstance—namely, when bile is retained in the ducts for some time. In one case, which has fallen under my notice, it occurred on the communication between the liver and duodenum being re-established, after it had been interrupted for some weeks. Mr. Lloyd has reported a case in which fat appeared in the fæces, after jaundice had existed for some time.

It was also observed, in two cases which fell under the notice of Dr. Bright, and in one reported by Portal.

COMPLICATIONS.

The most frequent complications were cancer or chronic inflammation of the pylorus, or the pyloric end of the stomach. In these cases, the duodenitis occurred secondarily, and during life—and unless jaundice appeared, its existence was unsuspected. It sometimes occurred in connection with disease of the liver, particularly hypertrophy, cancer, fatty degeneration and cirrhosis. The last disease seems, even when

met with as a distinct one, to be nearly always preceded by symptoms of duodenitis. It is not uncommon to find it complicated with chronic inflammation, cancer, or fatty degeneration of the pancreas, or tumours, whether malignant or otherwise, in its immediate vicinity. In one case it was complicated with phthisis.

The following were the complications observed in sixteen fatal cases :—

In one, it existed with jaundice, fatty discharge from the bowels, disease of the right head of the pancreas, and cancer of the liver ;* in a second, with jaundice, chronic gastritis, and cancer of the liver ;† in a third, with a cancerous tumour under the gastro-hepatic omentum ; ‡ in a fourth, with jaundice, fatty discharge from the bowels, and a tumour in the right head of the pancreas ; § in a fifth, with anæmia and fatty degeneration of the pancreas ; || in a sixth and seventh, with fatty degeneration of the liver ; ¶ in an eighth, ninth, and tenth, with cirrhosis of the liver ; in an eleventh, with dropsy, jaundice, fatty discharge from the bowels, and enlargement of the liver and spleen ; ** in a twelfth, with dropsy, jaundice, fatty discharge from the bowels, and ulceration of the whole of the mucous membrane of the small intestines ; †† in a thirteenth, with enlargement of

* Bright. † Andral. ‡ Clinique Méd. ii., 734.

§ Lloyd. || Fearnside.

¶ Gluge Atlas der Pathologisch Anatomie, 12te. Lieferung.

** Portal. †† Bright.

the heart and aneurism of the aorta ; * in a fourteenth, with chronic gastritis ; † in a fifteenth, with pthisis ; in a sixteenth, with ulceration of the small intestines.‡

TERMINATIONS.

The termination of *uncomplicated* chronic duodenitis is rarely fatal ; neither does it seem of itself to tend to shorten life, for years often elapse without its undergoing any marked alteration. Like chronic gastritis, it seems to have a tendency to disappear. This often takes place spontaneously, from a change in the mode of living, habits, and occupation. Like that disease, it has, however, a great tendency to return.

If this form does prove fatal, it is from the occurrence of ulceration, which either penetrates a blood-vessel, inducing fatal hemorrhage, or the walls of the intestine, peritonitis ensuing from the escape of the contents of the intestine into the cavity of the peritoneum : the latter occurs much more frequently than the first ; from narrowing of the intestine, death ensuing from inanition. If the last takes place above the point where the hepatic and pancreatic ducts open, the symptoms will be like those present in narrowing of the pylorus,—(*See Chronic Inflammation of the Pylorus*) ; if below, the vomited

* Nova : Acta. Physico-Med.

† Arch. Gén. de Méd., 1825.

‡ Lechellii.

matters will contain a large quantity of fluid, and they will be tinged with bile, and also assume a fæcal appearance and odour. In narrowing perforation of the intestine, either from ulceration or acute, softening sometimes takes place.

Of thirty-one cases of this disease which terminated fatally, death ensued in seventeen of the number from peritonitis, consequent on perforation.—(*See Perforation of the Duodenum.*) Of the remaining fourteen cases which proved fatal, death ensued—

In one case, in which the duodenitis was complicated with cancer of the liver, disease of the right head of the pancreas, and jaundice—from fatty discharge from the bowels, and loss of blood. Death was preceded by drowsiness.

In a second case, in which the duodenitis was complicated with cancer of the liver, chronic gastritis, and jaundice—from pleuro-pneumonia.

In a third case, in which the duodenitis was complicated with a cancerous tumour under the gastro-hepatic omentum, and jaundice—from exhaustion.

In a fourth case, in which the duodenitis was complicated with a tumour of the right head of the pancreas, jaundice and fatty discharge from the bowels—from inanition, in consequence of the duodenum being obstructed.

In a fifth case, in which the duodenitis was complicated with enlargement of the liver, dropsy, jaundice, and fatty discharge from the bowels—from

effusion into the pleural cavities, and suppression of urine.

In a sixth case, in which the duodenitis was complicated with anæmia and fatty degeneration of the pancreas—from exhaustion.

In a seventh case, in which the duodenitis was complicated with disease of the heart and aneurism of the aorta—from general dropsy.

In an eighth case, in which the duodenitis was complicated with fatty degeneration of the liver and jaundice—from diarrhœa.

In a ninth case, in which the duodenitis was complicated with fatty degeneration of the liver and jaundice, the cause of death is not stated. The gall-bladder and ducts were found distended with bile, and the blood in the *vena cava* was of a yellowish-black hue.

In a tenth case, in which the duodenitis was complicated with jaundice, which set in nine days before death—from exhaustion.

In an eleventh case, in which the duodenitis was complicated with narrowing of the duodenum—from inanition.

In a twelfth case, in which the duodenitis was complicated with narrowing of the duodenum—from inanition.

In a thirteenth case—from acute gastro-enteritis, followed by hemorrhage.

In a fourteenth case, from hemorrhage, in consequence of an ulcer penetrating the hepatic artery.

DIAGNOSIS OF CHRONIC DUODENITIS FROM CHRONIC GASTRITIS.

Chronic Duodenitis.

1. The patients have generally suffered for some time, often for years, from frequent attacks of biliousness. They still continue to suffer, often very severely.

2. Pain, with tenderness on pressure, sometimes fulness and constriction along the borders of the cartilages of the false ribs, when the disease is extensive, down towards the right of the umbilicus. The pain is not excited or aggravated immediately after food, but in from half-an-hour to an hour.

3. The appetite is generally good, the digestion rapid, and unattended by pain, or inconvenience, but, as soon as the digested food begins to

Chronic Gastritis.

1. The disease is sometimes preceded by attacks of biliousness.

2. The pain and tenderness are referred to the epigastrium, and are excited or aggravated almost immediately after food has been taken.

3. The appetite is generally good, the food is digested slowly, and with pain; acidity, acid, or watery eructations, and sometimes vomiting, exist.

enter the duodenum, flatulence, distension, and pain are excited; vomiting is rarely observed, unless the intestine is narrowed.

4. The bowels are generally confined or irregular; the motions light or clay-coloured, frequently containing bile, as dark coloured grains or streaks, sometimes they consist almost entirely of black, green, or yellow bile.

4. The bowels are generally confined, but the motions are of a natural colour.

TREATMENT.

In treating this disease, less reliance must be placed on medicine than on diet, exercise, and the due performance of the functions of the skin, kidneys and bowels. The following is the plan I am in the habit of recommending to patients:—

1. To sponge the body with cold or tepid salt and water every morning, afterwards rubbing it well with a coarse towel or flesh-brush for five minutes. If the patient is feeble, or very susceptible to cold, friction with a wet flesh-brush or glove may be used for five or ten minutes.

2. To drink from half-a-pint to a pint of cold water night and morning. In some cases the water

is apt to induce a feeling of sickness or coldness of the stomach. The first sensation soon ceases; the second may be obviated, by taking a wineglassful for a few mornings, then gradually increasing the quantity, until it amounts to a tumblerful. When the water is hard, boiled or distilled water should be drank.

3. *Breakfast*.—Instead of tea or coffee, cocoa prepared from the nibs, or milk and water, should be taken with brown bread, as dry toast, with fresh butter, marmalade, or jam.

When milk agrees, it will be found one of the best articles of diet, and, if the patient can live upon it and bread, the disease of the duodenum will generally rapidly subside.

4. *Dinner*.—In some cases fish agrees best; in others meat. The best kinds of fish are whiting, soles, mackerel, trout, smelts, and eels; the last are sometimes too oily. The best meats are mutton and lamb: game and poultry generally agree very well, particularly when tender and well cooked. Vegetables, puddings and pies, can seldom be taken without exciting more or less pain and distension. Soda-water, plain water, and toast and water, seem to be the best drinks; but sometimes the addition of a glass of good sherry, or a tablespoonful of brandy, is of great service.

The food should be well masticated, and care should be taken never to eat to the extent the appetite prompts.

5. *Tea*.—This meal should consist of the same articles as the breakfast.

Supper.—This meal should be as light as possible, and consist of a glass of water, with a baked apple or pear, a few stewed prunes and a biscuit, or a piece of brown bread and butter.

It is of the first importance in this disease, that the bowels should act regularly. This can only be obtained by acquiring a habit of soliciting an action from them at a certain time every day—after breakfast will be found the best time. In some cases the bowels do not act readily for several weeks. When this is the case, they should be encouraged by injecting a pint of tepid soap and water, or thin gruel, rather than by purgatives taken by the mouth. The brown bread, the water morning and night, and the baked apples or pears, or the stewed prunes, seldom fail to regulate the bowels, unless the constipation is unusually obstinate and of some years' continuation. Exercise is a most important auxiliary in the treatment of this disease. Patients should, therefore, be advised to take as much exercise as possible, care being taken not to overtax the strength. Change of air is also of the greatest service: generally a bracing air agrees best, but sometimes a warm or a relaxing one is of the most service.

Remedial Measures.—If the pain and distension are severe, the thirst great, the tongue coated, and the pulse quick, three or four leeches applied once a week, or once a fortnight, will be of great service. When the symptoms are less active, counter-irritation with croton oil and acetum cantharides, or a blister,

kept open with savin ointment, for several weeks, should be had recourse to. When the symptoms are severe, soothing remedies will be of the most service. Great benefit generally follows the administration of bicarbonate of potash, or calcined magnesia, with hydrocyanic acid, tincture of henbane, tincture of aconite, and mucilage of acacia, three or four times a day.

When the symptoms are not of a very active character, small doses of liquor of arsenic, with tincture of henbane, tincture of aconite, and nitrate of potash, given three times a day after food, are generally of the greatest service.

When debility exists, these remedies may be given in decoction of bark, or in combination with quinine, with marked benefit. Under all circumstances the action of the bowels must be so regulated, that an evacuation is obtained from them daily.

The attacks of headache, nausea, and sickness, are only relieved by the evacuation of bile. The best remedies for effecting this are infusion of senna and sulphate of magnesia, with nauseating doses of tartarized antimony and tincture of aconite, repeated every three or four hours, until the bowels are freely purged.

OBSERVATIONS.

1. *Frequent attacks of simple Dyspepsia, followed by Chronic Duodenitis—Frequent discharge of fatty matters from the bowels, twice from the mouth.—Cure.*

A female, aged twenty-eight, married, but has never been pregnant ; seen October, 1845. She has suffered since childhood from attacks of simple dyspepsia, and still continues to suffer, accompanied by spasms of the bowels ; and, for the last nine or ten years from nearly constant pain along the margins of the right false ribs, passing through to the back. The pain is increased some time after taking food, and by constipation of the bowels ; she has headache, which is greatly aggravated when the epigastric pain is severe, and when constipation exists. She has never menstruated, but about once a month she has a slight watery yellow discharge, which is preceded and accompanied by pain, tenderness, and fulness in the left ovary : during this time the pain in the epigastrium is increased. Her bowels are generally confined ; the evacuations natural, except when the epigastric pain is severe, then they are light coloured and mixed, particularly towards the close of the bilious attacks, with black bile. Several times, when the attacks have been very severe and of some duration, a substance like butter has been passed. The urine in the intervals of the attacks varies, sometimes it is pale and watery, but generally

it contains urates, which are very copious during and towards the close of the bilious attacks. She has slight cough, with pain under the right clavicle, and mucous expectoration;—over this part there is dullness on percussion, and increased vocal resonance; pain and tenderness, corresponding to the middle third of the duodenum, and fulness after food. Her liver is rather small. She is pale and thin, but not greatly emaciated; skin harsh and dry; pulse natural; tongue white; slight thirst during digestion; appetite good. She was under my care for four months; during this time she had several attacks of biliousness, but never severe, or of long continuance, and with them aggravation of the epigastric pain, but no fatty matters were passed. The epigastric and ovarian pain continued to be increased before and during the existence of the uterine discharge.

The treatment consisted throughout of small doses of liquor of potash and liquor arsenicales, with tincture of aconite, henbane, and powdered jalap, three times a day; counter-irritation to the epigastrium, with croton oil and acetum cantharides; friction of the skin every morning with a wet flesh-brush for five minutes; cold sitting bath for three or four minutes every night and morning; a diet consisting of plain boiled or roast mutton, lamb, fowl, or game; brown bread. She has lately come again under my notice, suffering from slight aggravation of the chest symptoms. If the action of her bowels is interfered with, she is still liable to the bilious

attacks. Twice the attacks have ended by her vomiting up a small quantity of green fluid, which on the addition of water coagulated into fatty masses.

2. *Frequent attacks of simple dyspepsia, inducing Chronic Duodenitis—Fatty discharge from the bowels.—Cure.*

A professional man, aged forty, of moderate height and build, with brown hair and eyes, irritable disposition, habits regular, but takes very little exercise. His skin is naturally harsh and dry, and frequently affected with psoriasis, which materially influences his sufferings, for he always experiences much relief when it is copious; the vessels of his conjunctivæ prominent, giving a muddy appearance to the white of his eyes. Since childhood he has suffered from attacks of simple dyspepsia, and they have continued to occur up to the present time, every ten, fifteen, twenty, or thirty days, according as the action of the bowels has been interfered with. For the last seven or eight years, he has been the subject of indigestion, which has presented the following symptoms: food, although taken with appetite, is followed in from half-an-hour to an hour's time by a sense of painful tension and fulness, with tenderness on pressure just below the cartilages of the seventh, eighth, and ninth ribs of the right side, accompanied by much flatulence and an intense desire for cold drinks. These symptoms, after continuing from one to two hours, subside. But, if the bowels are con-

finer, the mind much harassed, or anything taken, such as an ice, or a glass of cold water, during digestion, or the last thing at night, severe headache is excited, with nausea and sometimes sickness, and increased uneasiness, tenderness and fulness at the right of the epigastrium, which continue unrelieved for twelve, twenty-four, thirty-six, or forty-eight hours. Free evacuations from the bowels, by the use of purgatives, afford the only means of relief; but even these fail, however copious they may be, unless black bile is passed. The motions in health are scanty, pasty, and rather deficient in bile; but during the attacks they are not unlike dirty paste, and contain a large quantity of mucus. On two occasions, when the attacks had been of longer duration than usual, a little fatty matter was passed with the motions, on the second and third day after they had been relieved.

His liver is small, and even during the attacks it is not sensibly increased in size, but the gall-bladder can often be felt distended. When the attacks are prolonged beyond twenty-four hours, the skin and eyes become of a yellow tinge, and the urine, which is generally scanty and high coloured, deposits, on cooling, large quantities of uric acid. To keep the bowels in a regular state he is under the necessity of having constant recourse to drastic purgatives. But so sensitive is the duodenum, that the taking of even a small dose of blue pill or calomel is always followed by motions showing a deficiency of bile.

During the attacks I found no medicine act so beneficially as the following draught:—sulphate of magnesia, six drachms ; compound infusion of sennæ, two ounces ; tartarized antimony, quarter of a grain ; tincture of aconite, (Ph. L.,) five minims—mix. It generally excited slight nausea, but the headache was often immediately mitigated, the spasm of the common duct relieved, and bile soon appeared in the motions. By strict diet, active exercise, and the internal use of the liquor of potash and liquor of arsenic, with friction of the skin with a wet flesh-brush, and a hot air bath every seven or ten days, he got well.

3. *Simple Dyspepsia, followed by Chronic Duodenitis—Phthisis—Death.*

A male, aged sixty-two, by trade a cheesemonger, of regular and temperate habits : seen June 19th, 1854. He has been subject to bilious attacks for some years ; during the last five years they have increased in severity. Pain, with tenderness on pressure along the margins of the right false ribs, has also existed during this time, greatly aggravated while the attacks last. The following is the course the attacks pursue ; the bowels first become confined, or they act irregularly ; the motions scanty, but natural in colour ; at last spasms set in, accompanied by headache, loss of appetite, thirst and nausea, rarely by vomiting, and continue until the bowels are freely acted upon, and slimy, black, or

green motions are passed. His urine, which is generally high coloured, becomes, during the attacks, loaded with sediment. He has been losing flesh for some time; the emaciation and debility are now considerable. He has been troubled for some months with cough, expectoration of phlegm, and shortness of breath: during the last six weeks these symptoms have increased considerably. There is dulness on percussion, and increased vocal resonance on the upper part of both lungs, most pronounced in the right; the pulse is weak and small; skin cold, dry, and flabby; the conjunctivæ blanched; the liver is natural, but there is marked tenderness over the whole length of the duodenum. He has never had jaundice. Appetite very bad; tongue dry and clean, but rather redder than usual; thirst rather severe. Castor oil was ordered to be taken occasionally, to regulate his bowels; nitric acid, with nitrate of potash, tincture of henbane, and sedative solution of opium, in decoction of cinchona, three times a day: counter-irritation to the chest; cod-liver oil.

July 3rd.—He had improved slightly up to the 30th: then his bowels became confined, and with it the cough and expectoration had increased. For several nights he has had cold chills, followed by perspiration; breath fœtid; colon loaded with fæces; tongue coated; skin cool; thirst severe; appetite bad.

August 1st.—Has continued in much the same

state ; wine and beef-tea producing but little amelioration. To-day some petechial spots were observed on the legs. They gradually extended ; the feet and hands became anasarcaous, and the debility, emaciation, and other symptoms increased. He sank on the 12th.

Post mortem.—The colon was very large, the small intestines (the duodenum excepted) were very small. The walls of the duodenum were thickened, and it adhered to the under surface of the liver, the right kidney, pancreas, and the parts adjacent to it ; the mucous membrane was easily raised in flakes ; the glands were enlarged ; the opening of the common duct was prominent ; the stomach was rather large, and its mucous membrane of a deep colour ; the liver was small and of a deep hue, the spleen the same—both were very soft ; the right head of the pancreas seemed rather denser than the rest of the organ. Both lungs contained tubercles, and their lower lobes were infiltrated with serum. The heart was small, and the pericardium contained several ounces of serum.

4. *Simple Dyspepsia, giving rise to Chronic Duodenitis—Jaundice, followed by fatty discharge from the bowels, and later by blood—Death.*

A male, aged forty-two, by occupation a clerk, of moderate stature, with dark hair and eyes ; habits regular, taking from one to two pints of beer a day, but a great eater. For some years (since fourteen) he has been subject to attacks of biliousness and

spasms of the bowels, whenever the bowels became confined, but they have never been attended by vomiting, at least for some years. During the last ten or twelve years, difficult digestion has been joined to the attacks; the chief symptoms of which have been fulness in the right side of the epigastrium, tenderness and flatulence, commencing soon after food, and lasting for two or three hours.

The bilious attacks and spasms have for some months increased in severity, and with them the pain during digestion, and tenderness in the right side of the epigastrium. His appetite has continued good. When seen on the 25th of April, 1854, he was suffering from severe pain in the right side of the epigastrium, which had been excited by a hearty supper and drinking freely three nights before. There was considerable tenderness on pressure along the cartilages of the right false ribs and along the whole length of the duodenum, with nausea, thirst, severe frontal headache, giddiness, mist before the eyes, dry yellow coated tongue, scanty high coloured urine, hot dry skin, and quick pulse. There was a slight yellow tinge of the skin, and the conjunctivæ were congested. Two doses of castor oil had been taken without effectually relieving the bowels. The oil was repeated, and an enema given, with leeches to the seat of pain—warm baths, salines, medicines, and weak broths. In fourteen days he was quite well.

Three months later, he again came under my notice, suffering from jaundice. He had been until

a month back much better, then, from no known cause, the symptoms increased, and jaundice gradually appeared. The motions were scarcely tinged with bile and slimy; the urine and other secretions were of a deep orange hue; the emaciation considerable and increasing. There was no material increase of pain in the course of the duodenum, but he complained of severe weight and pain in the right hypochondrium and across the back. The liver was enlarged, and the gall-bladder could be felt distended; pulse quick, but without much increase of power; skin rather hot and moist, particularly towards night. Leeches were applied and repeated every five or six days over the seat of pain, with the use of the hot-air bath for twenty minutes, once a week, to increase the action of the skin; at the same time five grains of nitrate of potash were given three times a day, with a diet consisting chiefly of milk, beef-tea, and mutton-broth.

Under this treatment he seemed to improve; there was less tenderness and pain, and he ceased to lose flesh. At the end of fourteen days he was advised to take an emetic of ipecacuanha. This was followed, after the ejection of the contents of the stomach, by severe and incessant retching, great increase of pain in the duodenum, and of the febrile symptoms. The use of opiates, hydrocyanic acid, and the application of leeches, mitigated these symptoms. On the evening of the sixth day he felt suddenly faint, and soon afterwards vomited up some thick dark fluid, and

passed several motions of the same character. This fluid was found to consist of bile, mixed with dirty brown butter-like fat, and small pieces of tallow of the size of peas, with blood. The vomiting never returned, nor did the butter-like fat; but the masses continued to appear in the fæces, although in very small quantities, up to the time of death. The motions after the second day assumed their natural hue, but they were loose and copious, and mixed with blood; the liver lessened in size, and the yellow tinge of the skin decreased. The quantity of blood passed increased, in spite of astringents and opiates. He sank ten days from the attack of vomiting.

Post mortem.—The liver was of a deep olive green, large and flabby, and, when cut into, the ducts were found large, and had evidently been much distended, although they were now quite empty, save near the surface of the liver, where some particles of fat, like those passed during life, were found.

The duodenum was thick and fleshy, and of a deep venous hue, and, when cut into, its coats were found very much thickened—its valvular appearance had quite disappeared. The thickening was most apparent in its second or descending portion, and the mucous membrane presented a kind of honeycombed appearance from the existence of a number of ulcers, varying in size from a split pea to a silver penny-piece. Some of these ulcers had penetrated to the peritoneal coat, and the common duct opened in the centre of one of them.

The pancreas was large, and its ducts distended with calculi, but the pancreatic duct itself was pervious to fluid. The glands in the vicinity of the duodenum were enlarged; but the organs of the chest and abdomen, beyond being deeply tinged with bile, presented no morbid change.

5. *Long-continued Dyspepsia, followed by Subacute Duodenitis—Later by Chronic Jaundice—Fatty discharge from the bowels—Narrowing of the duodenum, and dilatation of the stomach—Death.**

A male, aged forty-eight, died on the 17th of April, 1832. He had long had indications of dyspepsia, for which he was in the habit of taking purgative medicines; never feeling comfortable unless two or three motions were passed in the course of the day. He was not a great eater, yet lived well and took from half-a-pint to a pint of wine daily.

On the 31st of June he had eaten freely of cray-fish, and in the night was taken with severe pain in the stomach, which brandy and water relieved somewhat. A calomel pill and a purgative, by acting on the bowels freely, gave him considerable relief; but still some tenderness remained on pressure in the epigastrium. He now took tartarized soda and small doses of blue pill, and confined himself to a very strict diet, with some slight relief; tenderness still, however, existed, particularly on the right side.

* Mr. Lloyd: Medico-Chir. Trans., vol. xviii.

A plaster of mercury and ammoniacum was applied. His general health had not suffered; appetite good; tongue white and rather coated; pulse natural. The plaster produced some vesicles and considerable relief to the pain. In a few days afterwards nettle-rash appeared, which lasted fourteen days. As it declined, the tenderness again increased; it was more diffused and accompanied by great fulness of the right hypochondriac and epigastric regions, and was attended by a sharp attack of fever. Bleeding and antiphlogistic treatment relieved these. The epigastrium still remained full, and there was tenderness on pressure, particularly below the cartilages of the eighth rib.

At this time (one month from the first attack) jaundice appeared, and in a few days the whole of the body became of a deep yellow, the motions clay-coloured; but the urine, saliva, mucus from nose, tears, and the serum of the blood, were deeply tinged. The appetite was good, and the bowels acted regularly, and, save the jaundice, there was no derangement of health.

He went into the country for six weeks. On December 28th returned: thinner and weaker, skin hot, pulse 120, tongue white, tenderness in the epigastrium extreme, the jaundice deeper. Immediately below the cartilage of the eighth rib a solid mass could be felt, and fluctuation. This was found after death to be due to distension of the gall-bladder and ducts of the liver. By mild antiphlogistic measures the acute symptoms were reduced. He continued in

much the same state up to February, 1832, when oil or fat of a brownish-yellow hue was passed from the bowels. It was sometimes firmer than at others, as if mixed with wax ; occasionally intermixed with the fæces, and varied in quantity : on one occasion it amounted to a table-spoonful. The motions became darker, but they never assumed a healthy appearance, and when the fat ceased they became again pale.

Vomiting now appeared, no day passing without it ; the quantity discharged being sufficient to fill a washhand-basin, consisting of what he had taken the previous twelve or twenty-four hours. It came up without straining, and was unattended by nausea. The appetite was good, and immediately after the vomiting had taken place he demanded food. The stomach when distended could be distinctly traced, its large curvature extending almost to the pelvis. The bowels throughout acted freely. Death ensued from exhaustion.

Post mortem.—The stomach was very large, capable of containing ten or twelve pints, its coats thickened ; under the pylorus there was a tumour formed by part of the duodenum, the head of the pancreas, absorbent glands, and cellular tissue. The duodenum, near where the common duct opened, was so contracted that it would only admit the end of a large blowpipe. The pancreas, save where it was in contact with the duodenum, was healthy ; there it had undergone some degree of inflammation. The com-

mon duct was quite obstructed at the duodenum ; in the rest of its course it was dilated and contained a brownish matter, like that passed ; it, however, escaped when the duct was opened. The liver was large : on cutting into it, thick dark bile gushed out from enlarged bile ducts ; the latter were generally enlarged, as were the gall-bladder and the hepatic and cystic canals.

6. *Chronic Duodenitis, supervening on attacks of Dyspepsia — Jaundice — Fatty discharge from the bowels—Death.**

A female, aged fifty, entered Guy's Hospital November 19th, 1828, of a dingy yellow hue and greatly emaciated. Seventeen years before she had what was supposed to have been hepatitis. Since this her health had been good, save only from occasional attacks of sickness and vomiting, which of late had become more troublesome, coming on about half-an-hour after meals, and when stooping down. Four months ago her skin at times became yellow, and her stools clay-coloured. Three months ago she was seized with violent pain in the abdomen, accompanied by diarrhœa, the food passing in an undigested state. The pain in the abdomen still continued, occurring at intervals, and was always relieved by pressure. Motions nearly white, urine tinged with bile. Her skin for the last month or

* Dr. Bright, in *Medico-Chir. Transactions*, 1833.

six weeks had been constantly yellow. Sulphate and carbonate of magnesia, with decoction of aloes, given; these not relieving the bowels, a dose of castor oil was exhibited. Next day, after its operation, white round pea-like masses were observed in the stool, as frequently observed after castor oil. She informed me that she had passed fatty substances before, and showed me some.

December 1st.—In the same state. The catamenia appeared now fourteen days after the usual period; heretofore always regular. Nitric acid ordered.

5th.—The catamenia had disappeared. Ten grains of the extract of taraxacum three times a day.

6th.—More fat observed, although all fatty matters prohibited.

7th.—Pain in the abdomen, nausea and vomiting of ropy, grumous fluid. In addition to the taraxacum, infusion of gentian and carbonate of soda.

She left the hospital. At the end of a few weeks she passed some dark pitch-like matter, and, a week before death, a quantity of clear blood. During the last days of life she became very drowsy, and slept incessantly during the last twenty-four hours.

Post mortem.—Body of a deep yellow, emaciated, heart and lungs healthy, omentum loaded with fat, liver adhered to the diaphragm. The head of the pancreas adhered to the duodenum, and was large, yellow, and almost cartilaginous; the whole of the gland affected, but in a much less degree in some parts than in others. The internal surface of the

duodenum ulcerated, and the portion which rested against the head of the pancreas softened, and of a yellow hue. In the centre of an ulcer was the opening of the common duct, nipple-like in shape; gall could be squeezed through it. It was obvious that this had only lately taken place, as the gall-bladder was distended with thick bile, although not tensely so. The liver of a natural size, and contained several encephaloid tumours, varying from a grain of rice to a nutmeg; five or six existed on its surface, with slight central depressions. They were harder than the substance of the liver, and seemed to shade off into its substance. The larger ones were yellow and soft in the centre. The bile ducts greatly distended with a watery kind of bile. The mucous membrane of the duodenum generally spongy; it contained half-a-pint of dark grumous fluid. The rest of the intestinal canal healthy; spleen soft; kidneys large and flaccid. The glands about the head of the pancreas enlarged.

*7. Entered the hospital with Dropsy and Jaundice—
Fatty discharge from the bowels—Death.**

A female, aged thirty-one, seen July 13th, 1831, suffering from anasarca of the extremities; the abdomen swollen, but without any distinct traces of fluid. She has slight jaundice, and her lips are purple. She has led a very irregular life. Her health has been failing her for two years, but particularly during the

* Dr. Bright, in *Medico-Chir. Transactions*, 1833.

last two months. On the 18th of June, she got wet at the time when the menstrual discharge was about to appear, and she had cold shivers, sweats, and cough with expectoration.

14th.—The bowels acted freely without medicine ; the motions clay-coloured, very fœtid, with a thin greasy scum on their surface, and in their lower part the same substance tinged with blood. The upper part of the abdomen distended and tender on the right side. She gradually sank, presenting no marked change, and died on the 19th.

Post mortem.—The body yellow ; liver large, and of a dark-olive green ; gall-bladder distended, and the *ductus communis* distended to the size of the little finger, but at the duodenum so narrow as to allow the bile to pass with difficulty. The intestines were fungoid and ulcerated from the pylorus to the end of the colon. In the duodenum, at one point, perforation had taken place ; but some slight adhesions had prevented any escape of the contents of the intestine.

8. *Chronic Duodenitis—Jaundice—Discharge of fatty matters from the bowels—Death.**

M. Sorin, a large corn-dealer, was confined in the Bastille. He bore his incarceration with courage ; but on his acquittal he began to suffer from difficult digestion, insomnia, and agitation, and he at the same time

* Portal *Maladies du Foie*, 419. Paris, 1813.

lost flesh rapidly, and in from four to five hours after a meal he experienced colicky pain, which increased in severity in the course of time. He referred the pain to the third or fourth cartilage of the right false ribs. M. Delaport discovered a swelling there, rather hard, and more apparent at some times than at others. The pain, and the flatulence which accompanied it, and the swelling, often suddenly ceased, and in a short time he would pass by stool a substance like the yellow of egg, but more fluid; but at times it was green, and more or less concrete, like oil: it was slightly congealed by cold, and in it were observed round concretions, like grains of shot. It was frequently remarked that the intensity of the pain corresponded to the quantity of the matter discharged—the severer the pain, the greater the quantity. Ipecacuhana was given as an emetic, with soap pills and aperient juices and drinks, but to no purpose; he lost flesh and strength. The epigastric region became very painful, and his eyes, face and chest, became yellow. At the time I saw him he was fifty-two years of age. By the touch, I could feel below the false ribs a tumefaction, which extended to the epigastrium and the umbilicus, and seemed to be continuous with the spleen, which was also very hard and more prominent than usual. A second swelling could be also felt, which seemed to be the gall-bladder. His pulse varied—sometimes slow, and at others quick. The swelling of the gall-bladder underwent considerable augmentation before the

attacks of colic and the evacuations came on. His mouth was dry, and a constant bitter taste existed in it, which disgusted him with food, and particularly with fat; urine red, depositing on cooling a brick-dust-coloured sediment; the emaciation increasing. His nights were agitated, and he suffered throughout them from distressing itching of the skin, and was often under the necessity of having recourse to baths to get rid of it: on the skin becoming moist he would fall asleep. Various measures were employed, and he was sent to drink the waters of Vichy; but he returned in a state of much greater emaciation than when he went there. The bitter taste in his mouth was most distressing; the agitation was extreme. His feet and legs began to swell; his face and wrists soon participating; the quantity of urine passed diminished, and became of a very dark hue, and his skin became of the colour of an Ethiopian's. The distressing itching of the skin had, however, ceased; the œdema increased; he was obliged to remain constantly in a sitting position in bed; the urine ceased to flow, and he sank in his fifty-third year.

All the viscera were infiltrated with a yellow fluid; the pleural cavities and the abdomen were largely distended. The liver was very large, in some places harder than natural, but in others as soft as brain. The spleen was not so large as its examination during life would have led one to suppose it would have been. The state of the duodenum is not noticed.

9. *Chronic Duodenitis, inducing narrowing of the intestine—Death from exhaustion.*

A farmer, aged forty-six, died in a state of extreme emaciation, induced by the vomiting of brownish foetid matters once or twice in the course of twenty-four hours. The disease had existed seven or eight years, and had commenced with water-brash, vomiting, sometimes of mucous—sometimes of bilious matters. The free use of spirits had first induced the symptoms, and frequent fits of intemperance had aggravated them. He was never free from a feeling of weight in the right side of the epigastrium, considered to be due to some affection of the liver; distension after food, with flatulence and black, scanty, offensive motions. When he indulged in the use of spirits, or his bowels became confined, or the bile ceased to appear in the motions, he either frequently vomited bilious fluid, or he had severe suborbital or frontal headache; yellowness of the skin, with severe itching, and sometimes a papillary eruption; increase in the feeling of weight in the right side; scanty high-coloured and sedimentous urine. Relief was only obtained by the discharge of bile, either from the mouth or from the bowels.

The vomiting under which he was suffering at the time of death had existed five months, and had gradually established itself, hastened by his habits and the use of drastic purgatives. It generally occurred with great regularity the first thing in the morning,

soon after he got out of bed. If it did not, the pain and uneasiness became so great towards the middle of the day, that he was obliged to induce it by irritating his throat. The matters brought up were dark-coloured, and had a stercoraceous odour. The motions were dark and scanty, and passed at long intervals; the urine of a dark colour, like muddy porter; the breath had a fœcal odour; appetite very ravenous, particularly the first thing in the morning.

On examination, a large tumour, formed by the distended stomach, occupied the upper three-fourths of the abdomen. The emaciation was extreme; but he continued, up to within three weeks of his death, to get about. The attacks of vomiting then began to be followed by fits of fainting, and it was during one of these that death ensued.

Post mortem.—The stomach was greatly enlarged, its coats thickened—the duodenum the same—its valvular appearance had quite disappeared. The last contained about a pint and a half of the same kind of fluid as that which had been vomited during life; its mucous membrane was of a deep venous hue and mammelated; near its lower part the canal was narrowed for the space of an inch, from thickening, induced by the deposit of the elements of inflammation in its walls. The rest of the intestinal canal was much reduced in size, but healthy.*

* This person was a patient of Mr. Hayward, of Aylesbury. Bœner (*Diss. de Tabæ Sicca*. Lips. 1762) found in a man, aged fifty, the duodenum contracted and the stomach dilated.

10. *Chronic Duodenitis and Chronic Gastritis—Vomiting of watery acid fluid, and sometimes of bilious and feculent fluid—Scanty evacuations from the bowels—Dropsy—Death from exhaustion.**

A divine, aged forty-two, had already been suffering severely for two years, when he sought my advice on the 9th of June. His abdomen became at intervals painfully distended, accompanied by great acidity of the mouth, and ended by copious vomiting, and partly, though rarely, by evacuations from the bowels. The swelling of the abdomen then subsided, and the pain was relieved. But in the course of a few hours, particularly after food or drink had been taken, the evil returned, and relief was only obtained by vomiting. Whenever the symptoms were very severe, he sometimes, before the vomiting came on, passed his finger down his throat, but only flatus and watery fluid were discharged, to which sometimes succeeded thick yellowish-black fluid, which relieved the paroxysm. The evacuations from his bowels were suppressed; enemas used daily produced scarcely any evacuation. He was greatly emaciated, face hipocratic, skin pale and yellow. He at length sank from exhaustion.

Post mortem.—The body was anasarcaous, and the abdomen contained serum. The omentum was of a livid colour, the gall-bladder nearly empty. The duodenum

* Dr. John Lechellii : Empher. Medico-Physico., anni MD.CLXXXIII.

was greatly distended with bilious fluid : its walls on section seemed to consist of more than half-an-inch thick of yellowish-black humour, and not less than ten large spoonsful escaped from them. There was a perforation in the stomach, near its anterior part, capable of admitting the thumb ; but internally there was a kind of valve-like formation, which had prevented the food from escaping into the abdomen.

11. *Chronic Duodenitis—Vomiting of food, from narrowing of the intestine.—Death from perforation.**

A female, aged forty-five, had complained for some time that her appetite was bad, and that all solid and heavy articles of food produced flatulent eructations and vomiting soon after they had been taken, and of a fixed, boring, and dragging pain in the vicinity of the right false ribs. Bowels open ; motions scanty, but natural. By the use of opiates the flatulence was relieved, and by degrees the pain disappeared. Some inflammatory tendency still remained, however, and she suffered from attacks of pain, lasting often for twenty-four hours, every four or five days. Her pulse was small and frequent, sometimes slow, but never hard. When seen on the 28th of July, she had been suffering since the evening before, severe pain from having eaten a small piece of cheese. The pain had continued to increase in severity ; the abdomen was greatly distended and very tender ; the face pale and contracted ;

* Vetter : Hufeland's Journal der. Pract. Arzneykund, 1837.

pulse small and hard. Antiphlogistic measures were had recourse to. In the evening she suddenly uttered a loud shriek, from the occurrence of severe pain ; she continued to utter cries from the severity of the pain, sank into a state of insensibility, and died in the night.

Post mortem.—Much gas escaped when the incision was made into the cavity of the abdomen, which contained about a quart of greyish-yellow fluid. The peritoneum was inflamed ; the liver was somewhat pale, but otherwise normal ; the gall-bladder distended with yellow gall ; the spleen small.

The duodenum an inch and a half from the pylorus was not more than an inch in circumference ; there was a rent in it about nine lines in length. The narrowing did not extend a great distance, and the intestine immediately afterwards resumed its usual size. The mucous membrane was covered with mucus, it presented some discoloured spots, but no traces of either ulceration or thickening. The edges of the opening were rather smooth ; they were soft and flabby. The colon and bladder were empty, the pancreas healthy.

12. *Chronic Duodenitis—Disease of the Heart—Debility—Attacks referable to obstruction of the duodenum—Dropsy.—Death from exhaustion.**

A male, aged forty-three, of a full habit of body. At thirty, he had had gout for the first time, and at thirty-seven severe gonorrhœa. He suffered severely

* Nova Acta, Physico-Med., tom. ii.

from gouty pains in the kidneys, and renal calculi. Both were relieved by treatment. He was liable to attacks of fainting. On the 23rd of December, 1754, he was taken with frequent eructations, depression of spirits, intermitting pulse, and difficulty of breathing. On the 11th of March, in the evening, he was taken with gout, difficulty of breathing, and his pulse was dry and irregular. Suddenly severe pain in the stomach was experienced, with nausea and restlessness. Fomentations, enemas, and sedatives, relieved the breathing; but the pain continued, and during the night it increased, efforts made to vomit causing it to become excruciating, and threatening the patient's life. Towards morning he became better, and continued so up to sunset; then the symptoms returned and were at length relieved by the discharge of a large quantity of thick porraceous bile from the bowels; the pain in the abdomen ceased, the right hypochondrium, which was hard, became soft, and sleep followed.

At the end of some days, the appetite diminished, the strength failed, the difficulty of breathing increased, constant palpitation of the heart ensued, the right hypochondrium became hard and swollen, nausea constant, and urine scanty. The exhibition of paregoric, the application of warm fomentations, and the abstraction of a small quantity of blood, relieved the pain. The feet became œdematous, then the legs, and a dry cough appeared. Pectoral decoction and diuretics were given without relief.

By the 9th of April the disease had greatly increased; the weakness extreme; the right side increased in size; the abdomen large; nearly every kind of food was rejected. Towards noon, (for the first time) he vomited thick black bitter fluid, of a disagreeable smell.—Death.

Post mortem.—The abdominal cavity contained a large quantity of red, turbid serum. The internal face of the stomach abounded with black spots and vesicles filled with limpid serum, which, by pressure with the fingers, was easily made to pass under the mucous membrane. The duodenum was corrupted, and presented two round ulcers, each about six lines in diameter, and nearly penetrating the walls of the intestine: they were situated two fingers-length from the pylorus, and one from the mouth of the common duct. The liver was hard and of a leaden hue, it weighed seven pounds; the duct of the gall-bladder contained calculi of various dimensions. Both sides of the chest contained fluid; the lungs presented black spots; the right lobe adhered to the mediastinum. The pericardium contained some fœtid sanguineous fluid; the heart was greatly enlarged; the *columna carnæ* of the right ventricle were unusually thick; the left ventricle enlarged, and its walls thickened. The orifice of the pulmonary artery was cartilaginous. The aorta, a little above the semilunar valves, presented an aneurism of the size of a goose's egg.

13. *Chronic Duodenitis—Anæmia—Emaciation and debility—Death from exhaustion.**

A male, aged forty-eight, tall, complexion light, by trade a millwright; habits of late years temperate, in early life the reverse. Health good, until two years ago; then, from mental anxiety, he began to suffer from uneasiness in the epigastrium, sometimes amounting to pain, generally increased after food, sometimes immediately, at others, and most frequently, in from two to three hours. He vomited occasionally in the morning, and had profuse flow of saliva, gastorrhœa, pyrosis, flatulence, with loss of appetite, flesh and colour.

During the last twelve months these symptoms had gradually increased in severity, and often obliged him to give up his work. For the last three months he has been unable to work. Now he is greatly debilitated, pale and anæmic; feet and legs œdematous; and suffers from gnawing pain in the stomach, not constant, often brought on by taking food, and continuing for some hours; has had sickness, but once only during the last two months; tongue pale, and clean; appetite not bad; bowels irregular, generally relaxed; motions sometimes dark-coloured, at others light and frothy. For some weeks he has suffered from constant palpitation in the epigastrium, and for some time from a buzzing noise in the ears,

* Dr. Fearnside: Med. Gazette, 1850.

and frontal headache. On any little exertion, his breathing becomes hurried and embarrassed, and he often suffers from a sense of oppression about the chest, with a tendency to syncope. Skin cool; pulse 80, small and weak; chest natural; second sound of heart deficient in clearness; murmur in the veins of the neck; epigastrium rather tender—the whole of the abdomen the same, but in a less degree; liver a little lower than the margins of the false ribs. Throbbing of the abdominal aorta existed in the præcordial region, and a blowing sound, synchronous with the systole; urine high-coloured, depositing lithiate of ammonia.

He seemed to improve under the use of steel, but this was but for a short time; he gradually sank, and died from exhaustion.

Post mortem.—The arachnoid cavity contained four ounces of serum; heart small, and along the margin of the mitral valve there were some small granules of the size of millet seeds. The stomach was small and healthy; the mucous membrane of the duodenum, in its upper portion, presented elevations of the size of pin's heads; in its lower, and in the commencement of the jejunum, it was red and softened; liver rather small, pale-brown in colour, and firm; pancreas rather large, pale and firm, infiltrated with fat—scarcely any of its true tissue remaining; spleen of its natural size, but very soft, being but little more than a capsule containing blood.

14. *Rheumatism and disease of the skin, followed by Chronic Duodenitis, induced by the use of purgatives and emetics—Death from hemorrhage.**

M. le Comte ———, aged sixty-two, had been repeatedly under treatment for rheumatism and disease of the skin, purgatives and vomitives being the remedies employed, when his digestion became deranged. Evacuants were first employed, but they increased the disorder; then recourse was had to a diet consisting of vegetables and white meat, with water for drink, with great relief, his digestion becoming better than it had been for years. This state lasted three years when it became necessary to amputate his arm for a cancerous tumour; soon after this, the irritation of the stomach and duodenum returned, which leeches and emollient enemata removed, with the exception of some heat and thirst during digestion. On the tenth day, he was taken suddenly with faintness, and died in a short time.

Post mortem.—The intestinal canal was filled with clots of blood. In the first part of the duodenum there was an ulcer approaching to cicatrization, save at one part, where an opening existed, passing into the hepatic artery. The stomach towards the pylorus was somewhat vascular.

* Cas. Broussais : Sur la Duodénite. Paris, 1825.

15. *Subacute Duodenitis—Vomiting of pure bile—Jaundice—Death from exhaustion.**

A female, aged thirty, entered the infirmary on the 10th of March, 1813. She had suffered for two months from constipation, occasionally with vomiting, severe pain in the hypochondriac regions, back, and between the shoulders, and a teasing cough. Her bowels had not been opened for nine days; castor oil acted freely, but without relieving the other symptoms. She vomited pure bile once in the twenty-four hours, and had great tenderness in the right hypochondrium; breathing not difficult.

Nine days after her admission, her face became yellow and expressive of great suffering; pulse 96; emaciation increasing; some relief was obtained by bending the body forward. Death on the 31st.

Post-mortem.—The stomach healthy; the duodenum, beyond the point where the common duct opened, contained an ulcer of the size of a five-shilling piece, with ragged everted edges and an irregular surface from fungous excrescences; the surrounding coats were thickened.

* Dr. Hastings: Midland Med. and Surgical Reporter, vol. iii.

16. *After an attack of purging and vomiting—Symptoms referable to the abdomen—Later, of Jaundice, emaciation, and symptoms of Chronic Duodenitis—Death from Pleuro-pneumonia.**

A writer, aged thirty-seven, was taken, after exposure to a current of cold air, while in a state of perspiration, with frequent vomiting and purging and great prostration. These symptoms disappeared in a few days, but he began to experience difficulty during digestion, with a sense of fulness and tension of the abdomen, and had diarrhœa frequently. Three years were passed in this state, when his face became yellow. He entered La Charité; the emaciation was considerable, the skin of a deep yellow—it had existed seven months. The liver could be felt enlarged, but from what cause it was impossible to determine; there was neither pain nor dropsy. For some time his appetite had completely failed, and when the smallest quantity of solid or liquid was introduced into the stomach, he experienced a sensation of swelling in the epigastrium, but neither pain, oppression, nor uneasiness. A large quantity of flatulence was discharged from the mouth, but he had never vomited more than two or three times during his illness. He complained frequently of palpitation of the heart, preceded sometimes by a rather severe pain in the præcordial region; and

* Andral: Clinique Médicale, tome ii., 509.

also at times of headache, giddiness and derangement of vision, prickings in the hands and feet, and passing contractions in different muscles. His moral and physical powers were gone. The diarrhœa had been replaced, since the jaundice had existed, by constipation. The colour of the motions and urine were not noticed. The pulse was always quick, the palms of the hands burning, the temperature of the rest of the body natural, the skin dry and the seat of constant and troublesome irritation. Vichy water was given him, but it excited fever and pain in the epigastrium; the same results followed the use of calomel and soap pills. During two months he got gradually more feeble, then pleuro-pneumonia of the right side appeared suddenly, and he sank.

Post mortem.—The yellowness of the skin and the emaciation pronounced. The liver large, but smooth and equal; externally it was of a greenish-brown hue, and presented, when incised, a number of encephaloid tubercles.

The mucous membrane of the stomach was generally of a slate colour, thickened, indurated and mammelated; that of the duodenum the same; the follicles greatly developed. The costal and pulmonic pleura of the right side were adherent in a great part of their extent by recent false membranes, the lower lobe of the lung of this side hepatized; the heart and its appendages offered no change. On the convexity of the brain there was considerable infiltration of serum in the subarachnoid cellular tissue.

17. *Disordered and sluggish digestion, followed by symptoms of an acute character, from an emetic and purgative—Better—Later, relapse, from indigestible food—Hemorrhage from the bowels—Death.**

A female, aged fifty-six, the mother of six children, subject to constipation, first induced by her sedentary habits. She ceased to menstruate at fifty. Since this time her health has improved, but the constipation has continued, digestion slow, and the abdomen at times distended. By leeching, baths, and diet, relieved.

She went into the country; while there her tongue became coated with white mucus, and she suffered at times from pains in the head. She took an emetic, followed by a purgative. From this time her mouth became dry, tongue red at its sides and apex, abdomen tense but indolent. She returned, and when seen presented all the signs of acute gastro-enteritis. By leeches, demulcents, emollient enemata, and baths, she was much relieved.

From taking some indigestible food the symptoms were very much aggravated; she had pain around the umbilicus and in the region of the kidneys, followed by diarrhœa, which relieved them somewhat, and vomiting for three or four hours. In the evening her skin assumed a slight yellow tinge. When

* Rayer : Arch. Gén. de Méd., tome vii., 1825.

seen on the 12th December, 1824, her tongue was red, thirst severe, slight pain and tenderness in the epigastrium. Leeches to epigastrium; light diet.

14th.—Better, thirst less, mouth not so dry.

Eight days later ten more leeches were applied. The next day she was better, and had a bath; but soon after returning to bed she was taken with severe pain, fainted, and passed a large quantity of blood from the bowels. The skin became cold, pulse insensible, the pain in the abdomen continued, and was propagated to the uterus and down the legs to the toes, and was accompanied by intense anxiety in the region of the heart. Death took place at the end of two hours.

Post mortem.—The stomach adhered by its pyloric end to the liver and colon; it was enlarged, and contained a large clot of blood, with a considerable quantity of sero-sanguinolent fluid; its mucous membrane was red, emphysematous in parts, and softened.

The duodenum adhered to the under surface of the liver, and at one point the whole thickness of the intestine, to the extent of six or eight lines, was destroyed, a communication existing between the intestine and an excavation in the under surface of the left lobe. The perforation contained a dark clot, the coats of the intestine surrounding it were thickened, the gall-bladder destroyed. A fistulous communication, a line and a half in diameter, existed between the ulcer in the liver and the colon. The ulcer contained a gall-stone eight lines in diameter,

and some fibrinous concretions; two openings also existed in it, communicating with branches of the portal vein. The liver around the ulcer was indurated.

18. *Symptoms of an acute character, arising probably from the passage of a gall-stone, followed by Chronic Duodenitis, and later by narrowing of the duodenum.—Death from exhaustion.**

A female, aged fifty-one, mother of a large family, first seen twelve months ago, suffering from pain in the region of the gall-bladder, occurring in paroxysms, jaundice, sickness, scanty high coloured urine, and constipated bowels. By the use of calomel and opium, castor oil and enemata, the symptoms after some time, with the exception of the jaundice, were removed. From this time her bowels never acted without medicine; and food, if taken in too large a quantity, was rejected; this did not take place when the quantity was small.

August 5th.—Seen suffering from excessive pain, confined to the region of the gall bladder; much worse sometimes than at others; vomiting almost constant, consisting of undigested and macerated food, some of which had been swallowed on the 2nd for supper: skin very yellow; bowels had acted scantily; motions high coloured and loose; urine high coloured and scanty; the quantity passed during her illness did not amount to more than six or

* Dr. Lever: Guy's Hospital Reports, vol. ii., 1844.

eight ounces in the twenty-four hours ; for the last forty-eight hours none had been evacuated. Local depletion, calomel and opium, and enemas. The vomiting continued and was most distressing ; the quantity of matter brought up was immense, it was highly offensive, and of a dark brown colour. On the second day, a small quantity of light coloured feculent matter was brought away by an enema. Collapse came on rather suddenly, and she died on the night-stool.

Post mortem.—The liver was large, dark coloured, and highly congested ; no traces of the gall-bladder existed ; the duodeno-pyloric end of the stomach, liver, and head of the pancreas were adherent ; the pyloric orifice of the stomach reduced in size from thickening of the coats. The duodenum in its middle and inferior third was so narrowed, that a quill could not pass. In the centre of the ileum a gall-stone, of the size of a walnut, was found partly sacculated.

19. *Symptoms referable to the epigastrium, followed first by relief, then aggravation from emetics, then jaundice,—Emaciation.—Death from exhaustion, induced by diarrhœa.**

A female, aged thirty-five, entered La Charité, towards the end of July 1820, with jaundice. For three years she had experienced, from time to

* Andral : Clinique Méd., tome ii., 352.

time, loss of appetite, bitter taste in the mouth, weight at the epigastrium, and general lassitude; emetics caused these symptoms to disappear, but they soon returned. About a year ago, while suffering from an attack, she had recourse to an emetic. This time the symptoms were increased; severe pain was excited in the right side of the epigastrium, and a few days later her skin became very yellow. She consulted a medical man, who ordered fifteen leeches to be applied to the anus, and gave her for some time pills and tisanies. She has lost flesh; the yellowness has continued. The pain in the right side of the epigastrium was of short duration, but it was replaced by a constant feeling of weight and tension, and this side felt tender and more swollen than the left. From time to time the weight was changed to pain, more or less acute. She had neither nausea nor vomiting, but she had a constant dislike for food, yet when once it was introduced into the stomach, no pain was excited. Her motions had never been white, but brown or yellow, sometimes liquid and frequent. On examination, a state of fulness existed in the right hypochondrium; here pressure was painful. The emaciation and jaundice were marked; the anorexia complete; no thirst; tongue pale; pulse somewhat quickened towards night; then the heat of the skin increased; motions yellow; urine scanty, and of a clear orange hue. At the end of a month, an abundant diarrhœa set in. Leeches were applied to the anus, and starch enemata with laudanum given,

but without effect. Ten or twelve evacuations resembling water, tinged with yellow, were passed in the twenty-four hours. On the fifth day, the abdomen became distended, and the pulse quick—Death took place on the ninth.

Post mortem.—The dura mater and the surface of the brain were of a deep yellow—the other tissues and the fluids of the body the same. The mucous membrane of the stomach was pale; the whole of the internal surface of the duodenum, from the pylorus to the commencement of the jejunum, was of a reddish-brown tint, the mucous follicles largely developed. The opening of the common duct was more prominent than usual; both it and the other canals were open and free from any change. The liver was greatly enlarged, from sanguineous engorgement; the mucous membrane on the lower fifth of the small intestines and in the cœcum was strongly injected; it diminished in the ascending portion of the colon, and was only slightly marked in the sigmoid flexure and rectum.

CHAPTER III.

SIMPLE DYSPEPSIA.

SYN.—*Fit of Indigestion—Disordered Digestion—Biliousness—Bilious Attack.*

THIS affection seems to arise invariably from obstruction of the lower part of the duodenum, by which its contents are prevented from passing into the jejunum ; the escape of the bile and pancreatic fluid from their ducts being at the same time interfered with or checked.

It occurs under two forms :—

1st, *as attacks of headache and sickness*, whenever the bowels are confined, or their action interfered with, or on excesses in eating and drinking being committed.

2nd, *as headache*, sometimes constant, but more frequently occurring whenever the bowels are confined or irregular.

CAUSES.

I. PREDISPOSING.—*Age and Sex.*—Females are much more liable than males, from their habits and occupations being generally sedentary, and from their inattention to the proper action of the bowels. Males are not exempt, and those who follow sedentary

occupations, who eat largely, and are inattentive to the action of the bowels, often suffer severely. It rarely affects those who follow out-of-door occupations, unless as an accidental affection, from eating largely of unaccustomed articles of food, or long-continued constipation of the bowels. The persons who suffer most from this affection are needle and shopwomen, shopmen, and clerks. Those with but little firmness of flesh and passive or sluggish dispositions, seem to be more predisposed than those of a firm habit of body and active disposition. It may occur at any period of life, and when once it has existed it is very apt to recur.

I have seen it in females as early as eight, nine, and eleven years ; but it is more frequently observed after the fourteenth year, and it continues often without intermission, particularly if the habits are sedentary and the bowels habitually confined, during life. Single females suffer more than married ; but this depends less upon celibacy than upon their following occupations which favour the occurrence of the disease.

II. EXCITING.—Damp warm weather, by interfering with the action of the skin, seems to act frequently as an exciting cause. It is owing to this that it is so frequently observed in low damp districts and on the sea-coast. Some persons never go to the sea-side without suffering, often very severely. The habitual residents are not exempt. Excesses in eating and drinking, particularly of food or fluids to which the

stomach is unaccustomed, or at unusual times, long fasting, succeeded by a heavy or hastily eaten meal, also frequently excite it. When a great tendency exists, drinking a glass of cold water, or taking an ice when the stomach is empty, or at bed-time; remaining somewhat longer than usual without a meal, particularly breakfast—taking some article of food of an oily, acid, or aromatic nature; mental irritation; anxiety, or fright, will excite the attacks. Some females suffer invariably, or more severely than at any other time, just before the menstrual discharge appears.

The most constant and immediate excitant is constipation and irregular action of the bowels. In these cases, the attacks assume a periodic character, and generally occur once in seven, ten, or fifteen days. The bowels are either confined—an evacuation not taking place from them more than once in two or three days; sometimes, particularly in females, not for four, five or even seven days—or, if they act with apparent regularity, the motions are very scanty, often hard, and mixed with or enveloped in mucus.

These states of the bowels are accompanied by the gradual accumulation of fæces in the descending portion of the colon. It can be generally readily followed by the aid of percussion, and it will be found that as soon as the dulness reaches to opposite the left anterior superior spinous process of the ileum, sometimes before, if the distended colon drags on the duodenum at the point where it passes under the

transverse arch, and interferes with the passage of its contents into the jejunum and the flow of the bile and pancreatic fluid into it, the attacks commence.

SYMPTOMS.

1.—*As attacks of headache and sickness.*—It commences with a feeling of lassitude, but little noticed when the patient is quiet, distension of the bowels, loss of appetite; sometimes, however, it is depraved, or it continues, but the food is taken without relish; there is a clammy, nauseous, or bitter taste, in the mouth, particularly the first thing in the morning; the mouth is often inundated with saliva; the tongue is more or less coated with white or yellow fur, either generally, partially, or in streaks; sometimes, however, it remains quite clean, but generally somewhat deeper coloured than in health; the breath is foetid, and acid, insipid, or foetid eructations frequently take place. Headache is a constant and prominent symptom; generally it is dull and heavy, confined to the forehead, or one or other of the temples, but sometimes it is seated on the top of the head, at its back; occasionally it is general; motion and mental application invariably aggravate it, often rendering it for a time shooting or throbbing. It is always accompanied by mist before the eyes and giddiness, sometimes by a rocking motion of the objects gazed upon. These symptoms are worse in the erect position and during exertion. The expression is dull and heavy; the face in some instances extremely pallid, in others

dusky, or tinged with yellow—the conjunctivæ the same. The skin is generally cold, and the patients often complain of feeling chilly; sometimes they have distinct rigors, particularly just before the vomiting sets in; the pulse is slow and feeble; the urine is sometimes quite clear and watery during the attacks, becoming, as they decline, dark coloured, or loaded with a large quantity of buff or brickdust coloured sediment; sometimes the attacks are preceded by a loaded state of the urine, which decreases or ceases as soon as the attacks begin to decline.

The attacks, when they occur spontaneously, sometimes commence before getting out of bed, sometimes immediately on getting up, after breakfast, or between breakfast and dinner, rarely in these cases late in the day.

These symptoms having lasted for a few hours or for several days, they either gradually subside, or diarrhœa or vomiting sets in. The attacks generally terminate, particularly in the young, in the last manner. It may be excited either by taking some article of food or drink, or from the headache and other symptoms increasing in severity, until at length the stomach is excited to contract and expel its contents. Food in a digested and semi-digested condition being first ejected, then yellow, bitter, watery fluid, and lastly, if the retching is severe, a small quantity of green bile.

When once vomiting sets in the recovery is generally rapid, and the patients in a few hours pass from a state of extreme prostration to perfect health.

The occurrence of the vomiting is often preceded by symptoms of derangement of the nervous system. In one case, which I had an opportunity of watching closely, the patient, a youth of sixteen, was first taken suddenly with chilliness, giddiness, and nearly complete loss of vision. In an hour or an hour and a half the fingers of the right hand became numb, this extended slowly up the arm to the armpit, from thence it passed to the upper lip, which, for the space of half a minute or a minute, was affected with convulsive twitchings; the sensation then passed to the tongue, nearly paralysing it for the space of a minute, and afterwards vomiting set in.

In another case, a girl of fifteen—immediately before the vomiting occurred, the eyes became fixed and staring, the muscles of the face alternately rigid and relaxed, the hands clenched, and the speech indistinct. These symptoms subsided immediately on the occurrence of the vomiting.

In two other cases, the vomiting was preceded by convulsive symptoms of short duration. In both these cases the patients were males, one eighteen, the other twenty-two, highly nervous and timid. They had both been addicted to onanism.

When the attacks terminate by diarrhœa, it is generally in the following manner: the symptoms already noted, viz., headache, nausea, loss of appetite, &c., having existed for a shorter or longer period, distension and uneasiness, accompanied by attacks of spasmodic pain, are experienced in the bowels; diarrhœa then sets in, and motions, first of

a dark colour and offensive smell are passed, followed by those of a watery character. The latter continue for a day or two, when they subside, and the patients are restored to the enjoyment of their usual state of health.

Sometimes, however, when there is considerable accumulation of hardened fæces in the colon, the motions, instead of being watery, are apt to be scanty, consisting of hardened faecal matter, mixed with blood and mucus; they are passed with much straining, and more or less tenderness exists over the descending colon.

Sometimes this form is accompanied by fever. In these cases the headache is very severe; the yellow tinge of the skin strongly marked, often approaching to jaundice; the skin hot; the pulse quick; the tongue thickly coated with yellow fur. Nausea, vomiting and retching, are generally severe, particularly the last, which is often very distressing; and the bowels are first obstinately confined, then purged, the evacuations loaded with bile. This form seems very apt to occur in marshy, badly-drained, or low districts; during the autumnal months, particularly when the weather is warm and damp.

2. *As dyspeptic headache.*—The most characteristic feature of this form of the affection is the headache, which is generally dull and heavy, situated most commonly in the forehead or temples; sometimes on the top or at the back of the head; sometimes occupying the whole of the upper part of the skull,

from the brows back to below the prominence of the occipital bone. It is invariably accompanied by constipation of the bowels—two, three, and four days being passed without an evacuation from them. In a few instances the bowels act daily, but the motions are scanty and hard, often mixed with mucus. The examination of the descending colon will invariably show that an accumulation of fæces exists in it. The urine is sometimes pale, but more frequently it is loaded with buff-coloured or brickdust-coloured sediment, particularly when the headache is increasing, at its height, or when it is subsiding.

The headache is invariably accompanied by mist before the eyes, and frequently by slight giddiness; the mouth is clammy or bitter; the tongue coated with white or yellow fur, particularly the first thing in the morning.

Patients suffering from this form of the affection, have either suffered from the first form, or they are very liable to it, particularly when the bowels become unusually confined, or any irregularities in diet are committed.

In most of the cases which have fallen under my notice the patients were pale and thin; their muscular system but little developed; they were generally highly nervous, and incapable of much bodily or mental exertion. In females, the menstrual discharge was generally scanty, and sometimes either pale black, or watery and green: the last was rarely constant. In a few of the cases, the patients were stout, but

their flesh was generally flabby; their skins pale; sometimes muddy or tinged with yellow.

I have several times known the headache depending on this affection considered and treated as one arising from disease within the skull. It is therefore important that a line of demarcation should be drawn between the two.

The headache in this affection invariably occurs in persons whose habits or occupations are sedentary. Their bowels are either habitually confined, or if they act regularly, the motions are scanty; the descending colon loaded with fæces; the urine sometimes pale, sometimes loaded with buff or brick dust coloured sediment; the mouth clammy and bitter, particularly the first thing in the morning; the breath more or less foetid. The headache, when severe, is always accompanied with mist before the eyes.

TERMINATIONS.

This seems to be generally in cure, particularly if a change takes place in the mode of living and habits, and if the bowels act regularly and sufficiently.

It sometimes terminates in chronic inflammation of the duodenum, but this seldom occurs until the affection has existed some years. In ten cases of chronic duodenitis which I have had an opportunity of observing, in only one of the number had the simple dyspepsia existed for five years before the duodenum became affected; in the others from ten to twenty, and twenty-five years had elapsed.

TREATMENT.

I. *In the form attended with headache and sickness.*—The duodenum and stomach may be either relieved by drinking copiously of warm salt and water, or by an ipecacuhana emetic, followed by a black draught or a dose of castor oil to unload the bowels. The habitual use of emetics are injurious, for they seem to favour the occurrence of inflammation of the duodenum.

The efforts must be directed to prevent the recurrence of the attacks; and this must be sought for in strict attention to diet, exercise, and the regular action of the bowels.

In treating this disease, less reliance must be placed on medicine than on diet, exercise, and the due performance of the functions of the skin, kidneys and bowels. The following is the plan I am in the habit of recommending to patients :—

1. To sponge the body with cold or tepid salt and water every morning, afterwards rubbing it well with a coarse towel or flesh-brush for five minutes. If the patient is feeble, or very susceptible to cold, friction with a wet flesh-brush or glove may be used for five or ten minutes.

2. To drink from half-a-pint to a pint of cold water night and morning. In some cases the water is apt to induce a feeling of sickness or coldness of the stomach. The first sensation soon ceases; the second may be obviated, by taking a wineglassful for

a few mornings, then gradually increasing the quantity, until it amounts to a tumblerful. When the water is hard, boiled or distilled water should be drank.

3. *Breakfast*.—Instead of tea or coffee, cocoa prepared from the nibs, milk, or milk and water, should be taken with brown bread, as dry toast, with fresh butter, marmalade, or jam.

4. *Dinner*.—This meal should consist of plain meat, well boiled or roasted, with vegetables, brown bread, and light puddings. The best drink will be plain water or toast and water, unless the patient is delicate, then a glass of good sherry, porter, or ale, will be of service.

5. *Tea*.—This meal should consist of the same articles as the breakfast.

6. *Supper*.—This meal should be as light as possible, and consist of a glass of water, with a baked apple or pear, a few stewed prunes and a biscuit, or a piece of brown bread and butter.

It is of the first importance in this disease, that the bowels should act regularly. This can only be obtained by acquiring a habit of soliciting an action from them at a certain time every day—after breakfast will be found the best time. In some cases the bowels do not act readily for several weeks. When this is the case, they should be encouraged by injecting a pint of tepid soap and water, or thin gruel, rather than by purgatives taken by the mouth. The brown bread, the water morning and night, and

the baked apples or pears, or the stewed prunes, seldom fail to regulate the bowels, unless the constipation is unusually obstinate, and of some years' continuation. Exercise is a most important auxiliary in the treatment of this disease. Patients should, therefore, be advised to take as much exercise as possible, care being taken not to overtax the strength. Change of air is also of the greatest service; generally a bracing air agrees best, but sometimes a warm or a relaxing one is of the most service.

REMEDIAL MEASURES.

I have found great benefit ensue from the exhibition of Fowler's solution of arsenic, in doses of from two to five minims three times a day, with five grains of powdered jalap, three minims of tincture of aconite, ten of tincture of henbane, and ten of diluted muriatic acid, in one ounce of decoction of yellow cinchona.

II. *In the form in which headache is the chief symptom.* The same rules and treatment (with the exception of the emetics and purgatives) are to be followed out. In most cases the disease yields rapidly, but sometimes several weeks elapse.

CHAPTER IV.

PERFORATION OF THE DUODENUM.

THIS is a very rare lesion : only one case has fallen under my own observation, and not more than nineteen have been recorded.

CAUSES.

I. PREDISPOSING.—*Sex and Age*.—Males, as in chronic duodenitis, are much more liable to this lesion than females ; for fifteen out of nineteen cases were of this sex. The period of life when it is most liable to occur seems to be from the thirtieth to the sixtieth year. In twelve of the fifteen male cases in which the ages were noticed—in two of the number it occurred between fifteen and twenty years, (both were seventeen) ; in one, between twenty and thirty, (the patient was twenty-two) ; in three, between thirty and forty ; in three, between forty and fifty ; in three, between fifty and sixty ; in three other cases, the ages of the patients were not stated, they were, however, middle-aged.

In the four female cases, one was under twelve years, the second was forty-five, the third and fourth were adults. Whatever favours the occurrence of acute or chronic duodenitis predisposes to this lesion.

II. EXCITING.—The perforation, when chronic

ulceration exists, may take place, either gradually from the successive destruction of the mucous, muscular and peritoneal coats, or suddenly, when the peritoneal one has become so thinned, as to be incapable of bearing the distension which would ensue while food was passing through it, or the strain from exertion or lifting heavy weights. Sometimes the perforation has been caused when the peritoneal coat has formed adhesions with an adjacent organ before ulcerating, by the adhesions giving way or becoming so thinned that they are incapable of bearing the strain caused by the stomach, when distended with food or drink.

Perforation is sometimes excited by acute inflammation, generally of a local character, ulceration or softening being induced. Perforation from this cause seems to occur less frequently than perforation from chronic ulceration. Gall-stones sometimes induce perforation, particularly when they are impacted in the opening of the common duct, or when they are arrested in their course along the intestine.

CHANGES OBSERVED AFTER DEATH.

When the perforation occurred as a result of acute inflammation, the openings were generally round or oval, in two instances they were slit-like; their edges in some cases smooth, in others irregular, black, or of a deep red. In the latter cases there was generally marked softening, often of considerable extent, and affecting all the coats, but generally more pronounced in the mucous than in the muscular and the peri-

toneal, while in the first softening was often absent, or, if it existed, it was generally slight, and confined to the mucous membrane.

When the perforation ensued as a result of chronic inflammation, the openings were generally round or oval, their edges sometimes smooth and clean, sometimes slightly irregular and thickened, the thickening varying in extent from a line to half an inch or an inch, and of a cartilaginous or fibrous consistence. In some cases, the peritoneal membrane had, before giving way, formed a small pouch-like prolongation. In an instance observed by Dr. Little, the pouch would admit the extremity of the finger.

The size of the openings varied. In the majority of the cases they were not larger than a silver penny or a threepenny piece, in a few they were as large as a sixpence, but they were very seldom as large as a shilling. It was rare to find more than one perforation, although in a few cases several ulcers were observed, which had destroyed the mucous and the muscular coats, laying bare the peritoneal. Newmann, (K. G.,) (*Aufsätze und Beobachtungen für Aertze*, Leipzig, 1802,) is, I believe, the only person who has recorded an instance where a double perforation existed. Sometimes, when adhesions had formed with an adjacent part, it was also destroyed, and the ulcer had penetrated it more or less deeply. In a case reported by Dr. Streeten, (*Mid. Med. Reporter*,) the ulcer made its way to the surface of the body, an inch and a half under the scapula.

The changes observed in the duodenum, in connection with the perforation, varied. In some cases, there were no other changes beyond slight induration of the edges of the perforation, and congestion of the mucous membrane in their immediate vicinity : in others, the changes were considerable, and they presented, according as to whether the perforation had ensued in consequence of acute or chronic ulceration, the different alterations enumerated in these two diseases.

In the cavity of the abdomen, bile, varying in quantity from four to eight ounces, was sometimes found ; but more frequently a brownish fluid was observed, but the quantity was seldom very great, nor was there, as is generally observed in perforation of the stomach, a large quantity of serum. The fluid, whether bilious or otherwise, was, if death had not taken place very rapidly, more or less mixed with purulent matter ; those parts of the peritoneal membrane with which the effused matters had come in contact were deeply congested, and sometimes, though rarely, adhesions existed between the folds of the intestine, or between them and the adjacent organs, the omentum, or the abdominal walls.

Peritoneal abscesses seem to occur but seldom or ever in this lesion. This seems due in part to the constant additions which are made to the fluid poured out, and in part to some influence possessed by the bile in interfering with the formation of coagulable

lymph. These causes seem to render recovery from peritonitis, consequent on this lesion, nearly if not quite impossible.

SYMPTOMS.

The occurrence of the perforation was sometimes preceded by none or but very slight symptoms referable to the duodenum ; this was particularly observed when only one ulcer existed, or when the inflammation, even when it was acute, was confined to a small space. Sometimes the duodenal symptoms were severe, though of a chronic character, and had been of some years' duration ; sometimes, on the other hand, they were of an acute character, accompanied by fever, and had existed only a few hours or days before perforation ensued.

The symptoms may be divided into two stages, first, that of *collapse*, and second, that of *inflammation*.

First.—The stage of Collapse.—The patient generally utters an exclamation that something has given way in the right side of the abdomen, near the margins of the right false ribs, and that boiling water seems to be flowing down that side and over the abdomen. In some cases the patients become insensible for a short time, but in the majority, feelings of faintness and depression are experienced ; the surface of the body becomes cold, and covered with cold sweat ; the pulse weak and almost imperceptible ; the features pinched, and their expression anxious, and low cries or groans are uttered incessantly.

santly ; sometimes vomiting or retching exists. At the onset of the pain the abdomen is contracted, and the patients frequently throw themselves on their abdomens—pressure seeming to give them some slight relief ; but they generally soon turn on their backs, lying with their knees drawn up, and their hands pressed deeply into the right side of the upper part of the abdomen, which generally becomes distended, though not to the same degree as is observed in perforation of the stomach, and the distension is often confined to the right side. In nearly all the cases the pain commenced at one point, and from thence extended, generally slowly, down and over the rest of the abdomen.

In two cases, however, the pain became suddenly general ; in both the patients became immediately unconscious, and died in a short time. After death the perforations were found very large, and the quantity of fluids which had escaped considerable.

2. *The stage of inflammation.*—It is often very difficult to determine when this stage sets in. In many cases it is never fully developed, but remains throughout blended with the first stage. The chief characters of this stage are tenderness and distension—the last is seldom very strongly or extensively marked, particularly at the onset ; increased heat of skin ; quick pulse, ranging from 100 to 140, seldom possessing much power ; severe thirst ; the fluids drank often add to the feeling of distension, which generally exists—if they are of a stimulating cha-

racter, they often extend and aggravate the pain very considerably. As the disease progresses towards a fatal termination—and this seems to be invariably the case—the pulse becomes more feeble and thready, the breathing difficult, the abdomen more distended and tympanitic, the mental powers fail, the voice becomes weak, and at length a state of insensibility sets in—sometimes suddenly, sometimes slowly—which is soon followed by death.

When the perforation is very small, from the escape of the matters into the abdominal cavity taking place but slowly, the symptoms may from the first be those of simple peritonitis, the stage of collapse being absent, or very slightly marked. Death does not seem, even in these cases, to be less certain; although it does not take place until a much longer time has elapsed.

DURATION.

Death seems rarely to ensue suddenly: it occurred in only two of the nineteen cases where the duration of life after the occurrence of the perforation was noted. In the majority of the cases, as in perforation of the stomach, it did not take place for twenty-four hours. In one case life was prolonged for forty-four hours, and in a second for several days—in both these instances the perforations were very small, and the contents of the duodenum escaped but very slowly.

The following table will show the duration of life in sixteen cases:—

In 2, death ensued in a short time.

„ 1	„	„	13 hours.
„ 1	„	„	18 „
„ 1	„	„	20 „
„ 1	„	„	22 „
„ 6	„	„	24 „
„ 1	„	„	25 „
„ 1	„	„	26 „
„ 1	„	„	44 „
„ 1	„	„	90 „

DIAGNOSIS OF PERFORATION OF THE DUODENUM FROM
PERFORATION OF THE STOMACH.—(*See Perforation
of the Stomach.*)

TREATMENT.

This must be the same as for perforation of the stomach.—(*See Perforation of the Stomach.*)

CHAPTER V.

CANCER OF THE DUODENUM.

THE duodenum is rarely affected with *primary* cancer, and in most of the cases which have been recorded the pylorus was also more or less implicated. It sometimes becomes affected directly, from the disease extending to it; and in cancer of the pylorus this was observed in eight out of thirty-eight cases of cancer of this part of the stomach. The intestine was not extensively affected in any of the cases. It is sometimes implicated in cancer of the under surface of the liver or of the gall bladder; of the right head of the pancreas; of the right kidney; and in tumours in its immediate vicinity. It very rarely becomes the seat of secondary cancer. Cruveilheir (*Anatomie Pathologique*, liv. xix. e. obs. ii.) found, in a case of cancer of the vagina, two small encephaloid tubercles at the entrance of the duodenum; the stomach, pancreas, ileo-colic valve, lungs and ribs were also affected, the brain also contained an encephaloid tubercle. The following (with the exception of one case published in the eighth volume of Hufeland's Journal by Henning, which I have been unable to refer to) are all the cases, I believe, which have been recorded of this disease.

1. *After ague—Disordered digestion, and pain in the right side of the epigastrium—Apthæ—Jaundice increasing in intensity and emaciation—Later, vomiting of mucus—Death—Scirrhus tubercles of pylorus and duodenum—Stomach dilated.**

A man, aged thirty-nine, eight years ago, was taken with ague, which returned several times. From this time he had suffered frequently from cardialgia, and complained of uneasiness in the right side of the epigastrium; and every year, in the spring and autumn, his mouth had been affected with severe apthæ, which was cured with difficulty. His face has always been pallid; eyes slightly tinged with yellow; emaciation somewhat marked, and appetite keen. In the spring of 1777, the right side of his epigastrium became swollen and painful, the appetite diminished, and the bowels sluggish. Purgative pills and enemata were used. The eyes became more yellow. In the month of August, slight fever appeared, daily, or every second day, which confined him to the house, and sometimes to bed. The symptoms increased, the appetite diminished, and the bowels became more sluggish. About the middle of October he began to vomit phlegm some hours after food. For two years he had suffered from occasional vomiting. He died on the 5th of November.

Post mortem.—The stomach was very large, the pylorus and the first part of the duodenum were

* Stoll: Ratio Medenda, pars iii. 1780.

hardened, and presented scirrhus tubercles; they were closely united with the pancreas.

Blancard (*Anat. Pract. Ration.*, cent. ii., obs. 100 cited by Voightel, *Handbuch der Path. Anatomie*) found the pylorus and half of the duodenum cancerous.

2. *Frequent attacks of pain in the cardia or pylorus, with sickness and constipation—Vomiting of bile, the motions also containing bile—Emaciation, and extreme pallor of skin—Before death, motions contained blood and pus—Duodenum studded with tubercles—Surface ulcerated—Stomach enlarged—Meso-colon contained tubercles.**

On December 21st, I was called in to a patient who had been suddenly taken with vomiting and violent pains in the bowels immediately after drinking a pint of strong beer. His bowels had been for some days, and were now, confined. Laudanum and ether were given for the attack, then salts and senna. His habits were irregular.

On the 21st of April, he had another attack, which was removed in the same manner as the former. It left him in a very debilitated state, which increased, and in the early part of May he was obliged to keep his bed. He suffered much, having, with but one or two exceptions, an attack of pain once in twenty-four hours. From a dislike to medicine, most of them

* Dr. Irvine : Philadelphia Med. Jour., 1824.

passed off spontaneously; but when they were very severe I was called to him. The pain was excruciating, mostly confined to the cardia, but sometimes to the pylorus, accompanied by violent pain in the head, vomiting, and obstinate constipation. The stomach became so irritable that all medicines, save calomel and sulphate of magnesia, were rejected; these induced large evacuations, followed by complete cessation of the pain. His mouth became sore from the calomel, then a decided improvement in his symptoms ensued. He was not seen from May until June: in the interval he indulged freely in drink.

From July to September he suffered daily from severe pain at the upper orifice of the stomach, vomiting of green-coloured bile, and obstinate constipation. His tongue was sometimes white, sometimes brown; skin generally pallid; emaciation extreme; motions black, of a fluid consistence, and almost devoid of smell—for two days before death they contained blood and pus; food remained down from two to four hours, then vomiting set in, and continued until the stomach was thoroughly emptied.

Three weeks before death, a considerable tumour was discovered in the right hypochondrium; it remained prominent for eight or ten days, and then subsided. He died on the 3rd of September.

Post mortem.—The heart was small; the stomach occupied the left hypochondrium, its great curvature extending down to the left iliac region: it contained half-a-gallon of green bile, diluted with whisky and

water—his common drink. The duodenum was greatly enlarged, hard and unequal, from being studded with tubercles varying in size from a hickory to a hazel nut. The largest contained a substance like dried cream. Its whole surface was ulcerated and covered with pus.

The pancreas was one-half its usual size, hard, and when cut into resembled boiled cow's udder. The cœcum was enlarged, the colon half its usual calibre, mesentric glands enlarged, and the meso-colon contained several tubercles of the size of peas.

3. *Jaundice—Spongy state of the gums—Diarrhœa—Motions containing blood—Death from coma—Cancerous masses in the duodenum stopping the opening of the common duct—Liver enlarged, and its ducts dilated.**

A female, aged twenty-seven, entered under the care of Dr. Burrows, suffering from deep general jaundice; expression of face dull and heavy; pulse ninety-six, full and soft; tongue dry and brown in the centre, pale at the edges; gums spongy and soft, bleeding on the slightest touch; bowels relaxed; motions deeply stained with blood; abdomen full and soft; urine copious and high-coloured; the motions were at first clay-coloured, now they are somewhat darker.

Three months ago she had a fall, which frightened her very much, and the next day she became jaun-

* Reported by Dr. Ormerod: *Lancet*, 1846, vol. ii.

diced. Nine days ago she had a rigor, which was followed by reaction, and from this time she has had oozing from the gums, with epistaxis. She has been treated by purgatives. Five grains of calomel ordered.

5th.—Has passed a restless night, moaning constantly; bowels open several times, motions consisted of pure blood; pulse 116, feeble; extremities cold; drowsy, but can be roused. She gradually sank into a state of coma, and died in the afternoon.

Post mortem.—The intestines were full of dark blood; in the duodenum there were two soft round pulpy masses of the size of walnuts, apparently growing from the opening of the common duct, and quite obliterating it. The liver was very large, of a dirty-green colour; the cystic and choloidic ducts very much enlarged.

4. *Sickness and headache, followed by the appearance of a pulsating tumour in the vicinity of the umbilicus—Later, by jaundice and vomiting, and towards the close of life by delirium—Cancer of the first part of the duodenum—Pancreas rather harder than natural—Common duct closed—Gall-bladder distended and adherent to the colon, its mucous membrane ulcerated—Liver distended with bile.**

A female, aged fifty-eight, had enjoyed good health until five weeks back, then sickness and headache

* Mr. Hamilton: Dublin Medical Journal, 1848.

set in, and soon afterwards she felt a tumour in the abdomen of the size of a fist. Now her face is sallow and anxious ; she is emaciated, and a nodulated sensitive tumour exists in the umbilical region. Leeches and blisters removed the tenderness. The tumour then seemed to present somewhat of the character of an accumulation in the colon ; it pulsated, but this was evidently from the aorta being below it. The pain was most severe when she turned on her left side. Malignant disease was diagnosed. Her skin got more and more yellow, and at last she became quite jaundiced, yet her motions were dark coloured. Obstinate vomiting at last set in, which resisted everything but black drop. Delirium at last supervened, and in this state she died.

Post mortem.—The first part of the duodenum was thickened and indurated, the tissues confounded with an homogeneous structure. The head of the pancreas was lost in the diseased duodenum, and it seemed rather harder than natural. The common duct was closed, the gall bladder enormously distended ; the last adhered to the colon by recent adhesions, and its mucous membrane at this point was ulcerated. The liver was distended with dark bile.

5. *Pulsating Tumour in the right side of the Epigastrium, increasing in size—Vomiting, first of mucus, then of food—Diarrhœa—Death—Cancerous Tumour—ulcerated in the first part of the Duodenum.**

A female, aged thirty-five, of phlegmatic temperament, the mother of five children. Her health had been good, until the month of May, 1833, when she began to complain of weight in the side. Some weeks later, a tumour was observed, which increased in size. On examination, in the horizontal position, a pulsating tumour was discovered between the stomach and navel, extending into the right hypochondrium. Her tongue was clean; appetite defective; a few days back she had vomited some insipid, colourless mucus; thirst severe; sleep disturbed; pulse rather quick; urine high coloured, depositing red sediment. The tumour was thought to be aneurismal; eight leeches were applied, and mercury and belladonna given internally and applied externally; light diet. The tumour continued to increase in size, and vomiting occurred after the lightest articles of food; the pulse increased in frequency, and the thirst became more severe; the motions watery. Death at length ensued, four months from the commencement of the disease.

Post mortem.—The emaciation was extreme; the

* Drechsler: *Österreich Med. Jahrbucher*, vol. viii.

chest was healthy; the stomach very small. The duodenum for five inches from the pylorus was cancerous, and formed a tumour of the size of a man's fist; it was ulcerated; the liver was healthy, its canals contained seven gall-stones.

6. *Burning pain in the Epigastrium—Vomiting after meals, with severe pain in the vicinity of the right false ribs—Death—Cancerous Ulcer of the Pylorus and Duodenum, penetrating the lobe of liver—Schirrous tubercles in the liver.**

A farm-servant, aged fifty, of temperate habits, entered the Carlisle Infirmary on the 24th of July. His health had been good up to one year back, when he began to suffer from a burning sensation in the pit of the stomach, which was so intolerable after meals, that he was obliged to irritate the fauces to induce vomiting when it did not occur spontaneously, to obtain a little temporary relief. His bowels were sluggish; appetite capricious, and he had water-brash and flatulence. No relief from medicine. He was thin; skin sallow, but not jaundiced; he had constant pain in a spot under the cartilages of the eighth and ninth false ribs, with great tenderness on pressure: any attempts at examination producing cold sweats and depression. Towards the close of life he suffered daily from attacks of this kind.

Post mortem, twenty-four hours after death.—The

* Mr. Thomas: Medical Times, 1848.

emaciation was extreme. The liver contained a number of schirrous growths of various sizes ; gall bladder healthy, ducts pervious. The pylorus and the first part of the duodenum were involved in a large ulcer, which had penetrated the left lobe of the liver to the depth of three inches. The lungs contained some tubercles in a quiescent state : the other organs were healthy.

7. *Severe pain in the right hypochondrium—Later, also near the umbilicus and right kidney, and in the epigastrium—Eructations—Constipation—Tumour increasing in size—Emaciation—Later, nausea and vomiting of green fluid—Death—Transverse portion of duodenum black, and of the consistence of lard—Tumour in the mesentery.**

A male, aged thirty-three, for two years addicted to drinking wine and brandy in excess. In the middle of the summer of 1803, he began to experience a dull pain in the right hypochondrium, which sometimes compelled him to bend his body to the right. In January, 1804, he began to suffer from a sensation near the umbilicus and right kidney, as if a bar of iron traversed these parts. From this time up to the 31st he lost his appetite and had eructations, but without nausea or vomiting. The old pain continued ; bowels confined. He entered the Hotel Dieu, where he remained two months. During his

* Leroux : Cours sur les Gén. de la Méd., iv. 220.]

stay he suffered from pain in the centre and right of the epigastrium ; and a tumour, which had been discovered before his admission, increased in size. His appetite was bad ; he had acid eructations, and his strength diminished materially ; skin natural.

He left on the 4th of April. From this time the pain has been more severe in the right renal region ; the tumour more pronounced ; acid eructations more frequent ; nausea ; and, at last, vomiting of a great quantity of green fluid, mixed with food but little altered. He evacuated a little hard fæces daily, at first black, then yellow. Emaciation and feebleness great.

He entered the Clinique on the 19th of April. A tumour existed, extending from the right to the left side of the epigastrium, and below the umbilicus, painful on pressure ; pulse feeble ; heat of skin natural ; no œdema. He sank on the 25th of May.

Post mortem.—The whole of the body was of the colour of ochre ; emaciation extreme ; the abdomen contained one quart of serum ; the duodenum in the whole of its transverse portion was of a black hue, mixed with red points, its walls half-an-inch thick, and of the consistence of lard. This part was raised by a tumour eight inches in diameter, which appeared to have taken its origin in the mesentery. The liver was black ; but of its natural size, the gall bladder distended with dark green bile ; the stomach healthy.

Broussais (*Cours de Pathol. et Thérap. Gén.*, tome ii., 78) found in the body of a female the

pylorus and the duodenum cancerous. The canal was reduced to the diameter of a crow's quill. She had never vomited, but was from twenty-four to thirty-six hours digesting food. She had suffered from a burning sensation in the stomach, and lancinating pains shooting into the chest as high as the shoulders and under the clavicles.



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